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United States Department of Agriculture

Forest Service

Dixie National Forest

Land and Resource Management Plan

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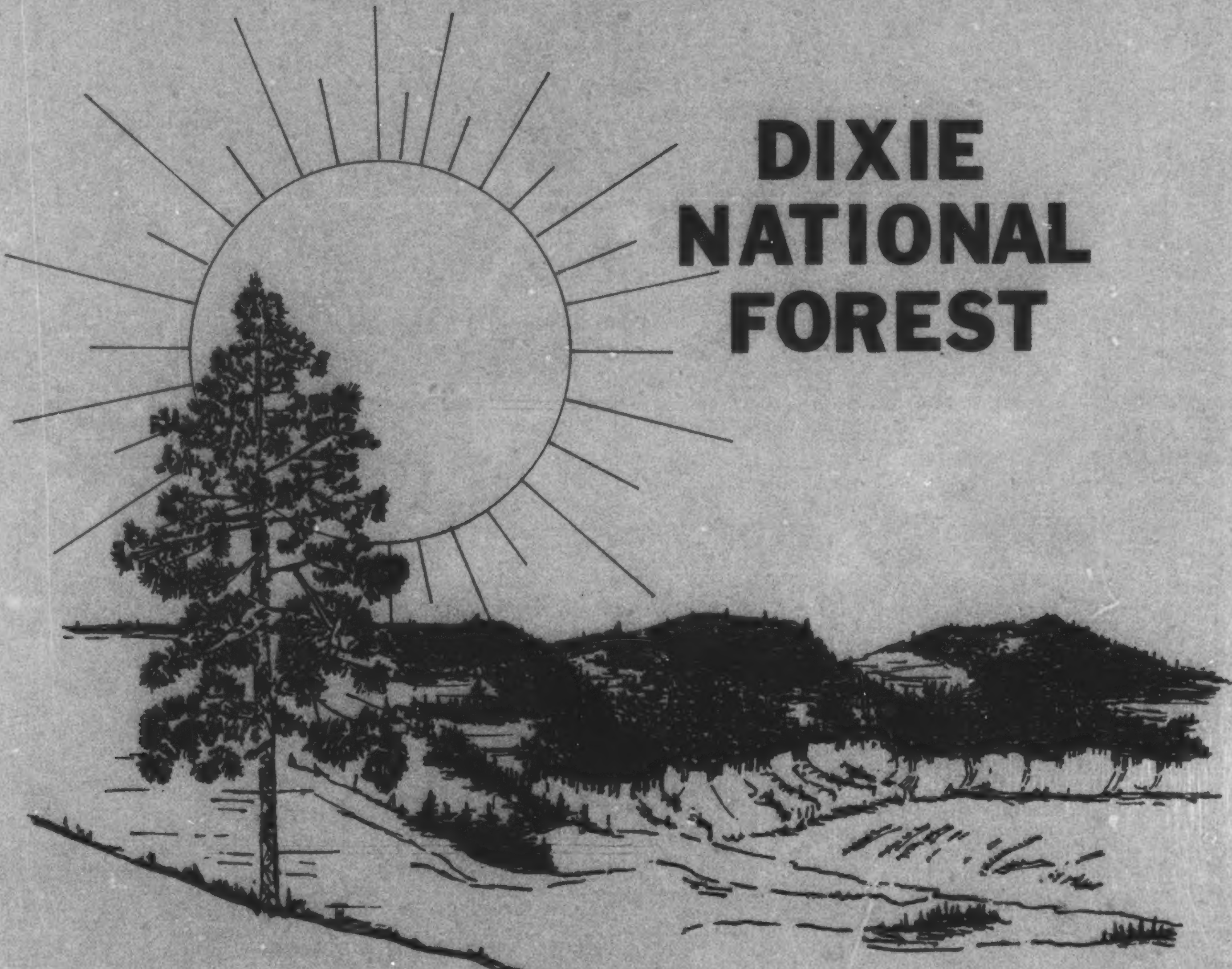
DIXIE NATIONAL FOREST



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PREFACE

This Land and Resource Management Plan has been developed for the Dixie National Forest. Details pertaining to the development of this Plan can be provided by:

Forest Supervisor
Dixie National Forest
82 North 100 East
Cedar City, Utah 84720

A. APPLICABLE LAWS AND REGULATIONS

The principle acts providing direction in developing this Land and Resource Management Plan are:

1. Multiple Use and Sustained Yield Act of 1960

2. National Environmental Policy Act (NEPA) of 1969

3. Forest Rangeland Resources Planning Act (RPA) of 1974

4. National Forest Management Act (NFMA) of 1976

RPA requires the Forest Service to conduct an assessment or inventory of the Nation's renewable resources and develop a program for the use of the resources. The assessment includes a determination of the capability of all National Forest lands to provide various goods and services. It also includes an estimation of future demands for those goods and services.

B. PUBLIC REVIEW AND APPEAL

If any particular portion of this Plan is determined invalid in relation to a specific person or circumstance, the remainder of the Plan shall remain valid. Also, the specific portion shall remain valid as far as its' application to people or in other circumstances.

The right to request an administrative appeal of the Regional decision to approve a Forest Plan is contained in 36 CFR 219.10 (d), which describes the appeal process. The appeal is limited to the issues raised during the planning process. Intermediate decisions made during the planning process prior to the approval or disapproval decisions are not reviewable. The procedure is described in 36 CFR 211.18.

Comments should be sent to the Forest Supervisor of the Dixie National Forest.

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CHAPTER I
FOREST PLAN INTRODUCTION

A. PURPOSE OF THE FOREST PLAN

The Forest Plan guides all natural resource management activities and establishes management standards and guidelines for the Dixie National Forest. It describes resource management practices, levels of resource production and management, and the availability and suitability of lands for resource management.

The Forest Plan embodies the provisions of the NFMA, Regulations, and other guiding documents. The prescriptions and standards and guidelines are a statement of the Plan's management direction; however, the project outputs, services, and rates of implementation are dependent on the annual budgeting process.

B. RELATIONSHIP OF THE FOREST PLAN TO OTHER DOCUMENTS

Development of the Forest Plan takes place within the framework of Forest Service Regional and National planning. The relationship among the different planning levels is shown as follows:

Congressional Acts

National level
Forest Service planning through the
Renewable Resource Assessment and Program (RPA)

Regional planning level through the
Regional Guide for the Intermountain Region

Forest level planning through the
Dixie National Forest
Land & Resource Management Plan

The RPA Program sets the National direction and output levels for the National Forest system lands. It is based on suitability and comparability information from each Forest Service Region.

Each Forest Service Region distributes its share of national production targets to each of its Forests. The share each National Forest receives is based on detailed information gathered at the Forest level.

The Land Resource Management Plan validates or provides a basis for changing production levels assigned by the Region. Activities and projects are planned and implemented by the Forest to carry out the direction developed in the Forest Plan. Information from all the National Forests in the region was used in developing the Intermountain Regional Guide.

The Forest Plan is the selected alternative and is based on the various considerations which have been addressed in the Environmental Impact Statement (EIS). The planning process and the analysis procedure used in developing this Plan, as well as the other alternatives that were considered, are described or referenced in the EIS. Activities and projects will be planned and implemented to carry out the direction in this plan. The local project environmental analysis will use the data and evaluations in the Plan and EIS as its basis.

C. PLAN STRUCTURE

This plan provides the direction for managing the Dixie National Forest. It contains the overall directions and activities which will be required to achieve the desired state of the Forest. Management area maps indicate where the activities will occur.

The Forest Plan is organized into five chapters:

Chapter I.	Forest Plan Introduction
Chapter II.	Analysis of the Management Situation Summary
Chapter III.	Plan Responses to Issues, Concerns, and Opportunities
Chapter IV.	Forest Management Direction
Chapter V.	Implementation of the Forest Plan

Details concerning the various subsections and pages are found in the Table of Contents.

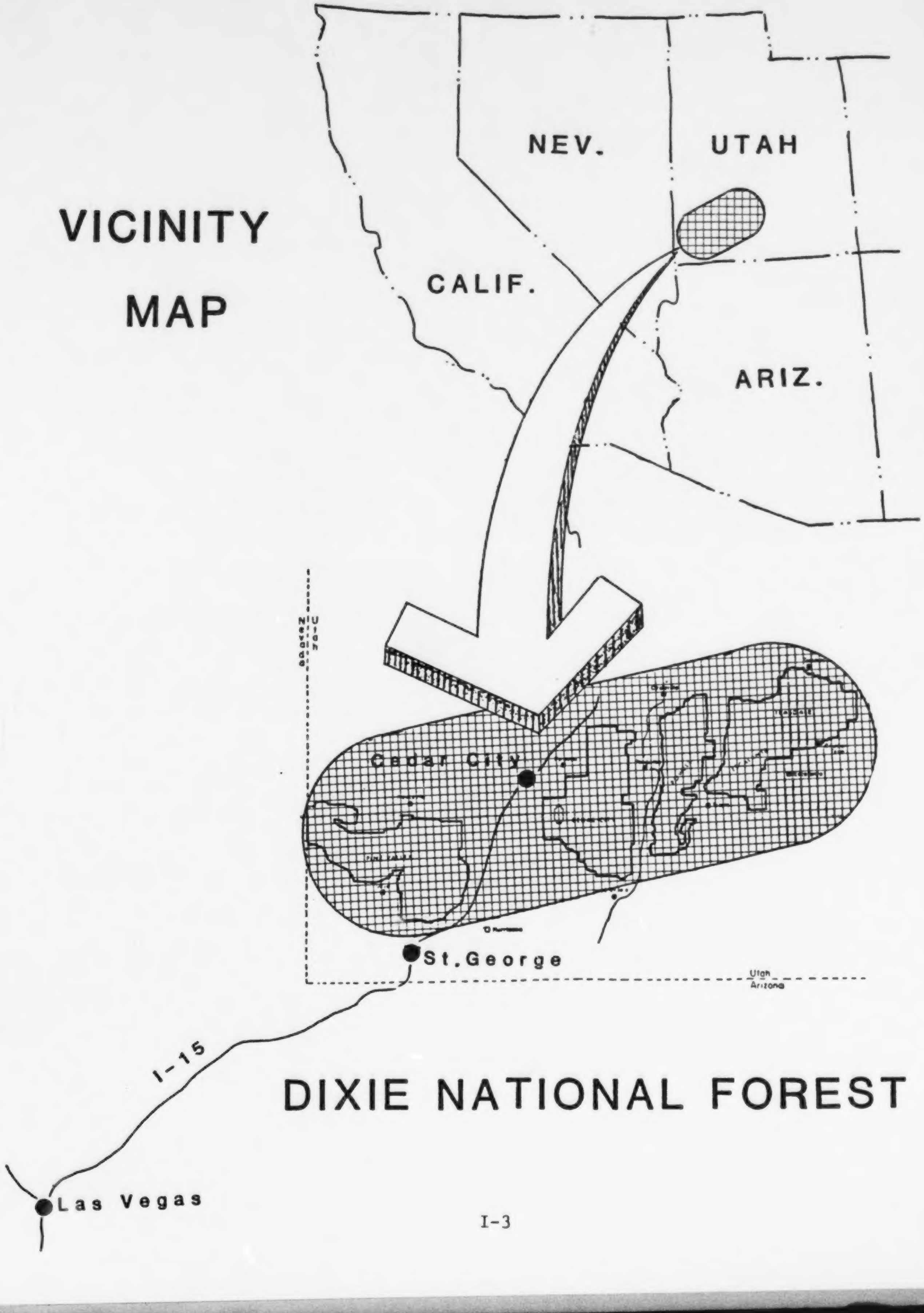
The chapter titled "Forest Management Direction" deals with the multiple use goals and objectives. It also lists the management practices and standards and guidelines for management of specific areas. The "Implementation of the Forest Plan" chapter deals with the means to implement the plan and evaluate and monitor the effects of management practices. All glossary and appendix references can be found in the separate Appendix document. Glossary words are highlighted by an asterisk throughout the Plan.

Maps displaying the various resources and associated management activities can be found in the accompanying map packet. By studying the maps concurrently with the Forest Plan, the reader can better understand the proposed action.

D. FOREST DESCRIPTION

The Dixie National Forest is located in southwestern Utah and is in Washington, Iron, Garfield, Kane, Wayne, and Piute counties (see vicinity map). The Forest covers 1,967,187 acres. Included within the Forest boundaries are 1,883,734 acres of National Forest Land, 78,899 acres of privately owned land, and 4,554 acres of State of Utah Land.

VICINITY MAP


NEV.
UTAH
CALIF.
ARIZ.
Nevada
Utah
Cedar City
St.George
Utah
Arizona
I-15
Las Vegas

DIXIE NATIONAL FOREST

CHAPTER II
ANALYSIS OF THE MANAGEMENT SITUATION SUMMARY

A. INTRODUCTION

This chapter describes the present condition of the Forest. The chapter describes the physical and biological setting, the economic and the social setting, the summary of the demand trends for the Forest resources and the ability of the Forest to supply the demand, and the expected future condition of the Forest.

B. PHYSICAL AND BIOLOGICAL SETTING

The Forest occupies almost two million acres and stretches for about 170 miles across southern Utah. The largest National Forest in Utah, it straddles the divide between the Great Basin and the Colorado River.

Elevations vary from 2,800 feet near St. George, Utah, to 11,322 feet at Blue Bell Knoll on the Boulder Mountain. High altitude forests in gently rolling hills characterize the Markagunt, Paunsaugunt, and Aquarius Plateaus. Boulder Mountain, one of the largest high elevation plateaus in the United States, is dotted with hundreds of small lakes 10 to 11,000 feet above sea level.

The Forest has many climatic extremes. Precipitation ranges from 10 inches in the lower elevations to more than 40 inches per year near Brian Head Peak. At the higher elevations, most of the yearly precipitation falls as snow. Thunderstorms are common over the Forest, during July and August and produce heavy rains. In most areas, August is the wettest month of the year.

Temperature extremes can also be impressive, with summer temperatures exceeding 100° F near St. George and winter lows exceeding - 30° F on the plateau tops.

The vegetation of the Forest grades from sparse, desert-type plants at the lower elevations to stands of low growing pinyon pine and juniper trees dominating the mid-elevations. At the higher elevations, aspen and conifer trees such as pine, spruce and fir predominate.

C. ECONOMIC AND SOCIAL SETTING

1. Zone of Influence

The Dixie National Forest Primary Zone of Influence consists of the communities and counties in southcentral and southwestern Utah within and adjacent to the Forest that are influenced by Forest policies and decisions. It is comprised of six counties: Washington, Iron, Kane, Garfield, Piute, and Wayne. The State of Utah organizes counties into multi-county planning districts. The Primary Zone of Influence is located in two of these districts:

- The Five County Association of Governments (FCAOG), which includes Washington, Iron, Kane Garfield, and Beaver Counties.
- The Six County Commissioners Organization (SCCO), which includes Piute, Wayne, Juab, Millard, Sanpete, and Sevier Counties.

Washington and Iron Counties contain the only urban areas in the influence zone and are populating more rapidly than the others. Kane, Garfield, Piute, and Wayne counties are primarily rural and population growth remains low. The Forest is important to people residing locally for recreation, grazing, mining, fire wood gathering, and timber harvesting. The principal timber harvesting activities take place in Kane, Garfield and Wayne Counties.

Economic Indicators, Past Trends, and Baseline Projections
for Primary Zone of Influence

						Baseline Projections		
	1960	1970	1977	1980	1983	1985	1990	1995
Pop. (M pers.)	30,474	34,474	45,877	54,351	61,050	67,810	76,924	83,403
Income (MM$)		82.2	210.1	343.1	434.8			
Employment (M pers.)								
Agricul.		1973	1802	1792				
Lumber		253	291	252				
Retail		2156	3326	3449				

D. RESOURCE ELEMENTS

The supply and demand conditions of the resource element are described under each resource section that follows. Those conditions are summarized in the following table.

TABLE II-1
CURRENT OUTPUTS, PROJECTED DEMAND, SUPPLY POTENTIAL

Activity-Category	Units	Current Level	1990	2000	2010	2020	2030
Developed Rec. Use Capacity-Public	MRVD	1793	1793	1806	1880	1897	1919
Demand Trends		339	382	534	870	1417	2858
Regional Objective		630	640	650	785	925	1050
Current Program		787	787	787	787	787	787
Developed Rec. Use Capacity-Private	MRVD	859	859	1155	1155	1155	1155
Demand Trends		259	426	1717	11892	168217	629138
Regional Objective							
Current Program		859	859	859	859	859	859
Dispersed Rec. Use Capacity	MRVD	5668	5668	5668	5668	5668	5668
Demand Trends		811	843	1130	1841	2954	4012
Regional Objective		630	665	766	766	823	880
Current Program		811	815	1085	1727	2685	3643
Wilderness Use Capacity	MRVD						
Demand Trends		8.0	8.0	10.3	17.6	28.7	46.8
Regional Objective		26.5	26.5	26.5	26.5	26.5	26.5
Current Program		8.0	8.0	11.0	17.0	27.0	36.0

Activity-Category	Units	Current Level	1990	2000	2010	2020	2030
Wildlife Habitat (M Acres)	Acres						
Improvement							
Demand Trends		5.3	5.8	6.5	6.5	6.8	6.8
Regional Objective M Acre Equiv)		43.0	38.0	33.0	28.0	24.0	19.0
Current Program (M Acres)		4.5	5.8	6.1	6.4	6.6	6.7
Permitted Livestock Use	MAUM						
Demand Trends		There would be a demand for all AUMs made available.					
Max Production Potential		115	119	124	130	137	143
Regional Objective		115	119	121	121	122	123
Current Program		115	115	115	115	115	115
Timber Sales Offered	MMBF						
Demand Trends		55	55	55	55	55	55
Max Production Potential			30	30	33	30	30
Regional Objective RPA-85			51	38	31	21	16
Current Program		20	26	25	25	25	25
Water Yield	MAC.Ft.						
(increase over natural	flow)						
Demand Trends		Exceeds supply potential.					
Regional Objective		2.9	2.9	2.9	2.9	2.9	2.9
Current Program		2.9	4.3	8.3	8.1	6.7	6.0

1. Recreation

The Dixie National Forest has unique recreation opportunities. The Forest is adjacent to or surrounds three National Parks and one National Monument. The parks and monument draw people into the area from throughout the United States and from other countries. Once in the area, the people often visit many areas on the Forest and use the campgrounds for bedroom areas.

Major population centers within one hour driving time of the Forest are Cedar City, St. George, Panguitch, Enterprise, Hurricane, and Escalante. The population of these communities and others within the hour driving time is approximately 100,000 people. Many parts of the Forest are used by people from larger communities, such as Las Vegas and southern California. Private land adjacent to and within the Forest boundary has been developed and serves as summer home property for many people from these larger community centers.

The Recreational Opportunities across the Forest are highly diversified. The primitive recreation areas provide opportunities for camping, hunting, viewing scenery, and horse back riding. Semi-Primitive non-motorized recreation areas provide similar opportunities as primitive plus opportunities for small boats and cold water fishing. Motorized Recreation areas have opportunities for camping, picnicking, resort lodging, recreation residence, sledding, skiing, hunting, gathering forest products, viewing interpretive exhibits, hiking, viewing scenery, driving for pleasure, snowmobiling, biking, horse back riding, canoeing, sailing, swimming, water skiing and fishing.

Developed Recreation - Public. Cedar City and Pine Valley Ranger Districts, which are located adjacent to Interstate Highway 15, are the two most heavily used areas on the Forest. More than half of the use on these two districts comes from Nevada and California. Only 15 percent is from Utah.

Recreation use has increased steadily over the past 11 years. Some areas, such as along the Boulder-Grover Road, are expected to experience a greater increase in use. The Boulder-Grover Road recreation increase is due to reconstruction of this road. This road will tie Bryce Canyon and Zion to Capitol Reef and other National Parks in southeastern Utah. The use on Cedar City and St. George Districts is expected to continue increasing, due to continued development of summer homes on adjacent private land and the desire of people in large metropolitan areas to escape the crowds and heat. Some sites on these districts are used up to 50 percent of their capacity. This exceeds the recommended use by 10 percent.

The number of major developed facilities, by ranger districts, is shown in Table No. II-2. Most use of developed facilities is during the summer months and fall hunting season. Some facilities along State Highway 12 to Bryce Canyon are used late into the fall and winter and early in the spring by visitors to Bryce Canyon.

TABLE II-2
NUMBER OF FACILITIES FOR DEVELOPED RECREATIONAL USE

RANGER DISTRICT	CAMPGROUND	PICNIC	OVERLOOK & OTHER
D-1 Pine Valley	7 (1)	3 (3)	3
D-2 Cedar City	10 (1)	1	6
D-3 Panguitch	2		1
D-4 Escalante	3	1	
D-5 Teasdale	4		
TOTAL	26	5	10

(Numbers in parentheses are group facilities.)

Most of the facilities were constructed during the time when tents were the major form of camping on the Forest. Since that time, the trailer and motor home have evolved, and there has been resource damage due to the incompatibility of facilities and equipment being used with the available developed sites.

Some of the major campgrounds, roads, and spurs were reshaped with road reconstruction to accommodate modern vehicles. Facilities such as tables, grills and pads associated with them need repair to meet the standards of roads and spurs. Across the Forest, vegetation has been badly trampled in developed sites. Compaction, loss of topsoil, development of trails, exposure of tree roots, and stream bank breakdown are all impacts that are degrading the appearance of picnic areas and campgrounds on the Forest.

In recent years, construction and rehabilitation of recreational facilities have declined because of reduced Forest Service budgets and human resource programs. The current outlook for the next several years is for no new construction of recreational facilities. Current funding allows little more than minimal operation and maintenance.

The capacity of developed sites is measured in people at one time (PAOT). That's an estimate of the number of persons who can comfortably use a site at one time. Family camping and picnic sites are estimated to have a capacity of five persons per unit. The current capability of the Forest is shown in Table II-3.

TABLE II-3
PEOPLE AT ONE TIME CAPACITY OF DEVELOPED SITES

DISTRICT	CAMPGROUND	PICNIC	TOTAL
D-1 Pine Valley	1,005 (355)	390 (390)	1,395
D-2 Cedar City	2,790 (200)	20	2,810
D-3 Powell	680		680
D-4 Escalante	450	30	480
D-5 Teasdale	530	___	530
TOTAL	5,455 (555)	440 (390)	5,895

(Numbers in parentheses are group facilities.)

Developed recreation sites on the Forest contain old growth overstory with little understory vegetation. The overstory vegetation is susceptible to disease and insects due to its age. One area on the Cedar City District has recently lost most of its overstory aspen due to disease. Although the vegetation is coming back, there is a need to develop vegetative management plans for developed sites, to manage the vegetation to provide shade, and to increase the aesthetic appeal of the areas.

Other opportunities to improve developed recreation for the public include:

- Facilities that better resist vandalism.
- Limit use of developed sites to capacity.
- Attract visitors during mid-week, low-use periods.
- Rehabilitate substandard sites.
- Close and allow some sites to rest during slack periods.
- Emphasize development of new campgrounds and picnic areas.

More intensive use in the future will result in further overcrowding, additional site deterioration, greater wear on facilities, and increasing social problems such as vandalism. The Forest expects to shift use to less crowded facilities at more remote locations and a small shift from weekend to weekday use. Projected use for developed sites is expected to exceed supply by about year 2010.

The projected use of developed recreation facilities on the Forest is shown in Table II-4. This use is based on projected growth in population of the areas.

TABLE II-4
PROJECTED RECREATION USE BY DECADE

PLANNING PERIOD

1981-1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
339 MRVDs*	382 MRVDs	634 MRVDs	870 MRVDs	1417 MRVDs	2858 MRVDs

Downhill Ski Area. Brian Head is presently one of the fastest growing ski areas in Utah. It has grown from 33,400 skier visitor days in 1973 to 70,600 in 1983. The area is anticipating growth from the present seven to ten lifts during the next few years. Crystal Mountain development is proposing to connect with Brian Head and increase the potential for expansion to 14 lifts.

The ski area is the largest in southern Utah and draws users from Nevada, southern California, and Arizona. Presently, the area is dependent on natural snow condition for the amount of use it receives.

Projected use for downhill skiing on the Forest from now until 2030 is shown in Table II-5. This use will exceed the existing capacity and development by 1997 if the use continues at the present growth and facilities rate. The growth rate is likely to decrease as the slopes become more crowded. The projected growth rate reflects this change at the year 1995 by dropping from 28% to 5% annually.

TABLE II-5
PROJECTED USE IN THE PRIVATE SECTOR

PLANNING PERIOD

1981-1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
259 MRVDs	426 MRVDs	1294 MRVDs	1812 MRVDs	2952 MRVDs	4809 MRVDs

Capacity of the downhill ski area on the Forest and its potential future capacity is shown in Table II-6.

TABLE II-6
PRESENT & PROJECTED CAPABILITIES FOR SKIERS AT ONE TIME ON DOWNHILL SKI AREAS
1985-2030

AREA	PRESENT CAPACITY	ADDITIONAL PLANNED WITHIN BOUNDARIES	POTENTIAL ADDITIONAL OUTSIDE BOUNDARIES
Brian Head	3200 SAOT*	1324 SAOT	2390 SAOT

On most weekends during the peak season the existing ski area nears capacity. Holiday weekends are especially busy. Weekends are more popular because of work schedules, and also because of the distance involved for most of the users, who come from Nevada, California, and Arizona.

Brian Head, like most ski areas in Utah, is located up a narrow canyon. Access is often a problem during winter months when the road is snow packed. The State Department of Transportation is presently looking into possible solutions to the problem.

Developed Recreation - Private. Developed private recreation includes recreation residences, group organization camps, and other recreational opportunities provided by private enterprises under special use permit from the Forest Service. The following table summarizes private recreational activities on this Forest.

TABLE II-7
SPECIAL USE RECREATION SITES AND SITE USE

SITES	1980 VISITOR DAYS	7-YEAR AVERAGE INCREASE PERCENT
2 Recreation Residence (43 residences)	5,600	N/A
2 Lodge Resorts	7,400	N/A
1 Organization Camp	5,500	N/A
4 Boat Marina	6,000	N/A

Recreation special uses paid fees of $17,540 in fiscal year 1984. There have been no new permits issued for recreation residences on the Forest since 1959. Originally, they were used only in the summer. Snowmobiles and four-wheel drive vehicles now make year around access possible.

Recreation use in the private sector has not shown an increase other than in skiing. These areas have been operating at this capacity for some time without expansion. On the other hand, private residences have increased greatly on private land within and adjacent to the Forest boundary.

Some organizational camps have deteriorated and need substantial rebuilding to bring them up to satisfactory condition.

Dispersed Recreation. Dispersed recreation is use away from developed sites. Driving for pleasure is the most popular dispersed activity, followed by camping, fishing, gathering forest products, viewing outstanding scenery, hunting, and hiking. With the increase in fuel and heating cost, gathering fuelwood has increased 115% a year over the last three years. Driving for pleasure is expected to become more popular over the whole Forest. However, State Highway 14, and Boulder-Grover Road are being considered scenic highways by the State. The added publicity will increase their use.

Dispersed recreation areas receive intensive use on weekends and holidays, with areas near water being the most popular. Different types of users, such as snowmobilers and cross-country skiers, compete for use of a given recreation area. The most heavily used areas, especially for fuelwood and snow play, are on the Cedar City District. The capacity of the Forest for dispersed recreation is calculated by using the Recreation Opportunity Spectrum (ROS). The number of acres in each ROS class was converted to recreation visitor days (RVD's)*.

TABLE II-8
CURRENT CAPACITY FOR DISPERSED RECREATION
DIXIE NATIONAL FOREST

ROS CLASS	TOTAL ACRES	WILDERNESS ACRES	AVAILABLE ACRES	RVD/ACRE CONVERSION FACTOR	MRVD CAPACITY
Primitive	83,000	83,000	83,000	.3	25.8
Semi-Primitive Non-Motorized	831,309		831,309	.9	748.2
Semi-Primitive Motorized	645,797		645,797	2.8	1,811.4
Roaded Natural	237,747		237,747	12.4	2,948.1
Rural	10,869		10,869	12.4	134.8
TOTAL	1,811,722	83,000	1,811,722		5,668.3

Capacity for dispersed recreation is directly related to ease of access and facilities. The easier the access and the more available the facilities, the more opportunity for dispersed recreation. The Forest estimates for every mile of new road construction (which is not closed after use) 118 acres of land will change from its classification as Semi-Primitive Motorized (SPM)* or some Semi-Primitive Non-Motorized (SPNM)* to a Roaded Natural (RN)* classification. This will increase the capacity from 1.1 MRVD's to 1:4 MRVD's, depending on the acres of SPNM and/or SPM that will change to RN with the addition of one mile of new road.

The projected use for all types of dispersed recreation was predicted to increase as follows:

YEAR	1990	2000	2010	2020	2030
MRVD'S	843.1	1129.9	1841.1	2953.9	4811.7

Demand for dispersed recreation will never exceed the supply unless some unforeseen population explosion takes place during the planning period.

The Forest expects the same patterns of use to continue unless the economy changes. There will be some shift in the amount of use between the communities of Boulder and Teasdale, due to the construction of the new high standard Forest Highway. Other than increased use on the new highway, use will continue to be high around Panguitch Lake, Navajo Lake, Duck Creek, Pine Valley, National Parks, and along major highways.

Timber sales and mineral development will add additional miles to the Forest Road System. Some of these roads will be closed to motorized recreational use, and use on remaining roads will increase.

Heavily used dispersed campsites that continue to receive heavy use from hunters and fishermen will continue to deteriorate. Competition for choice hunter sites will create social conflicts.

Opportunities for improving the dispersed recreation experience and reducing conflicts between user groups include:

- Developing a program for trailhead construction.
- Encouraging use at remote sites.
- Developing a program for all types of dispersed winter recreation.
- Providing adequate sanitation for both summer and winter use.
- Encouraging State and counties to provide parking and sanitation facilities for winter use.
- Develop a program to determine use in dispersed areas.

The following table shows the eight major dispersed recreation activities on the Forest and the average increase in use per year over a three year period.

TABLE II-9
VISITOR DAYS USE FOR SELECTED DISPERSED RECREATIONAL ACTIVITIES
DIXIE NATIONAL FOREST
1983 AND AVERAGE YEARLY INCREASE 1980-1983

ACTIVITY	1983 VISITOR DAYS (MRVD)	AVERAGE YEARLY INCREASE 1980-1983 (PERCENT)
Driving for Pleasure	201.8	0
Fishing Cold Water	106.9	4
Gathering Forest Products	84.6	5
Viewing Outstanding Scenery	66.7	3
Hunting Big Game	59.8	2
Skiing	45.2	3
Hiking	52.4	3
Horseback Riding	34.1	1

Trails. The Forest has approximately 637 miles of trails. The trail inventory lists 175 miles as adequate, 462 miles as inadequate, and 40 miles as planned but not constructed. The majority of the trails were originally constructed for fire access or livestock distribution. Recreation use of these trails has pointed out the need for some relocation. Many of the trails have also been damaged by timber sale operations, and are badly in need of repair. Most trail use has been in the summer, but snowmobiles and cross-country skiers are increasing winter use. Two trails on the Forest have received National recognition and status. Whipple Trail and Cascade Falls trails have both been designated as National Recreation Trails. An accurate figure of use for these two trails has not been determined, but the use on them has increased over the past five years. Whipple Trail is one of the major access routes into the Pine Valley Mountain Wilderness.

Areas closed, restricted, open to ORV use.

Off-Road Vehicle Use. The Forest presently has 181,840 acres closed to all types of motorized vehicle use, 159,845 acres closed to all but snow machines, and/or on existing roads. These closures have been designated to protect an area from resource damage or preserve wildlife habitat. Winter use on the Forest is becoming more popular as equipment becomes more available for use. The Markaguant Plateau near the developed ski area, and Navajo Lake - Duck Creek are popular areas on the Forest. Cabins in these areas are being used on a year around basis.

The development of the three and four wheeled All-Terrain-Vehicles is fast becoming a concern on the Forest. Use of these vehicles will likely increase on trails and general forested areas. Without a plan to regulate use in critical areas, some damage may occur.

Cultural Resource. The lands administered by the Dixie National Forest, due to their general remoteness, have become a repository for much of the undisturbed evidence of the prehistoric and historic habitations in south central Utah. On the timbered ridges, and within the grass and sage-covered valleys of the Forest, the untold stories of ancient hunters, gatherers and farmers, as well as the tales of our own pioneering ancestors, are silently awaiting an expression. To this end, cultural resource specialists are currently inventorying the thousands of archeological properties within the boundaries of the Dixie National Forest.

As directed by Executive Order 11593, all inventoried cultural resources are evaluated for eligibility for nomination to the National Register of Historic Places. Through December of 1984, 1,363 archeological sites have been recorded on 140,000 acres of Dixie National Forest system land. The occurrence of another 10,000 to 20,000 sites is projected for the remaining 1,740,140 acres of Forest.

Of the 1,363 archeological sites, three sites have been nominated to the National Register of Historic Places. They are the Mountain Meadows Massacre Site and Pine Valley Chapel and Tithing Office on the Pine Valley Ranger District and the Long Flat Prehistoric Quarry Site on the Cedar City Ranger District. In addition, two sites presently listed on the National Register are adjacent to the boundaries of the Forest. They are Old Irontown near the Pine Valley District and the Anasazi Indian Village State Historical Monument in Boulder, Utah.

In addition to sites formally listed on the National Register, many significant, potentially eligible prehistoric sites are found on the Forest.

Significant and potentially eligible historic sites may be found among the Forest's various administrative facilities especially those from the Civilian Conservation Corps era. Canidates may include the following:

- Vermillion Castle, Bear Valley, and Panguitch Lake guard stations; Cedar City Ranger District.
- Aquarius and Wildcat guard stations; Teasdale Ranger District.
- Dave's Hollow, Podunk and Jones Corral guard stations; Powell Ranger District.
- Clayton and Jubilee guard stations; Escalante Ranger District.
- Browse and Pine Valley guard stations; Pine Valley Ranger District.

According to the guidelines established by the USDA Forest Service (FSM 2361.02-2), 1990 has been established as the target date for the completion of the cultural resources survey and inventory of the Dixie National Forest. This target will not be met, as the complete survey of approximately 1,740,140 acres of Forest would take another 174 years based on a high annual survey average of 10,000 acres.

For the future, cultural resource inventories will continue to be conducted prior to any decision on any understanding which could affect significant cultural values. As the rate of ground-disturbing activities (i.e., timber sales, fences, pipelines, chainings, etc.) increases or decreases, the rate of cultural resource survey and the recording and evaluation of new archeological properties will increase or decrease proportionately. Monitoring activities, which judge the effectiveness of site avoidance by project activity, should continue to be given a high priority.

The enhancement and protection of the Dixie National Forest's cultural resources, which is only minimally related to the degree of project work, should be pursued both formally and informally through the medium of Law enforcement and public education. Incidents of vandalism should be promptly and formally turned over to the Forests or regions law enforcement officer for investigation. Cultural resource specialists should take an active role in the development of an awareness by the public of the fragile and irreplaceable nature of their archeological resources. This can be accomplished by the presentation of slide talks to civic groups, the development of conservation programs for use with public school children, the publishing (i.e., newspapers) of the on-going accounts of area excavations, etc.

The Dixie National Forest has several opportunities to develop educational programs. The Escalante Ranger District enjoys close proximity to an established heritage center - Anasazi Indian Village State Historical Monument. Conceivably, the Dixie's cultural resource specialist could work with the curators at the Anasazi Indian Village to develop audio-visual (slide, video, etc.) programs for presentation to civic groups and school children in the towns where the Dixie National Forest has administrative offices.

The Supervisor's Office of the Forest is located in Cedar City, home of Southern Utah State College. The college, offers a potential reservoir of canidates for cooperative student programs and/or volunteer projects. The cultural resource specialist should view the college as an available resource that could be, if nurtured properly, a mutually beneficial experience for the Forest and the student.

Student-oriented programs, for example, could be developed to aid in the stabilization and interpretation of the Anasazi dwellings in North Canyon on the Escalante Ranger District. Combining forces with interested local citizens, and guided by consultation with agencies such as the USDI National Park Service, small scale projects could witness the stabilization of walls, the protective fencing of sites prone to vandalism and the establishment of interpretive signs.

The Forest's law enforcement program, which is formally charged with the protection of the cultural resources, operates on the premise that every Dixie National Forest employee has enforcement responsibilities. Ideally, the primary responsibility of the employee is to report any activity, initiated by the public or the agency, that is detrimental to cultural resources.

Visual. The scenic beauty of the Forest is one of the major attractions to recreationists. Three National Parks and one National Monument surround or are found within the boundaries of the Forest. These areas are often the attraction that invite people to come. Many stay to see the attractions on the Forest and visit the campgrounds.

An inventory of the visual resource on the Forest has been completed using the visual management system outlined in "National Forest and Landscape Management ---Volume 2".

The inventory showed the following areas in each visual management category:

	Acres
Preservation	83,000
Retention	854,000
Partial Retention	642,000
Modification	248,000
Maximum Modification	56,000

Special Areas. There are no scenic highways, on the Forest at the present time. Some highways such as Highway 14 between Cedar City and Highway 89 and Boulder-Grover Road, have been discussed. No formal action has been taken.

2. Wilderness

The Utah Wilderness Act of 1984 set aside 83,000 acres on the forest which possess outstanding natural characteristics. The purpose of this plan is to prescribe a method of management which will protect wilderness ecosystems while allowing limited human use. A primary concern is the human impact on popular sites. The act designated three wilderness areas. These are: Pine Valley Mountain (50,000 acres), Ashdown Gorge (7,000 acres), and Box-Death Hollow (26,000 acres).

TABLE II-10
CURRENT CAPACITY FOR WILDERNESS RECREATION
DIXIE NATIONAL FOREST

AREA	TOTAL	RVD/ACRE CONVERSION FACTOR	MRVD CAPACITY
Pine Valley Mountains	50,000	.32	16.0
Ashdown Gorge	7,000	.32	2.2
Box-Death Hollow	26,000	.32	8.3
TOTAL	83,000		26.5

Trails within the wilderness areas are in need of repair or they are non-existent.

TABLE II-11
PROJECTED DEMAND FOR WILDERNESS AND BACK COUNTRY RECREATION

YEAR	MRVD
1986-1990	8.0
1991-2000	10.3
2001-2010	17.6
2011-2020	28.7
2021-2030	46.8

Based on the above calculations, the supply of wilderness will not meet the demand during the foreseeable future. However, the calculations are based on past use of primitive areas on the forest as projected to the year 2030. A majority of the projected use will likely remain in unroaded back country areas of the forest.

3. Fish and Wildlife

More than 350 species of wildlife and fish inhabit the Dixie National Forest for all or a portion of their life cycle. Consumptive and non consumptive uses of many of these species are an important part of recreation on the Dixie National Forest.

Primitive areas on the Forest as projected to the year 2030 a majority of the projected use will likely remain in unroaded back country areas of the Forest.

TABLE II-12
MANAGEMENT INDICATOR SPECIES FOR THE DIXIE NATIONAL FOREST

SPECIES	VEGETATION TYPE(S)
Mule Deer a/	Grass-forb, sagebrush, mountain brush pinyon-juniper, sapling-mature aspen, sapling mature conifer
Rocky Mountain Elk a/	Grass-forb, sapling-mature aspen, sapling-old growth conifer
Wild Turkey	Mountain brush, pole-mature aspen, mature-old growth conifer
Goshawk	Riparian tree, mature aspen, mature-old growth conifer
Common Flicker	Mature aspen, mature conifer
Yellowbreasted Chat	Riparian shrub-tree

TABLE II-12 CONT'

SPECIES	VEGETATION TYPE(S)
Bonneville Cutthroat Trout	Pristine headwater streams
Resident Trout; a/ Rainbow, Brook, Brown, Cutthroat	Streams, rivers, lakes, reservoirs
Macroinvertebrates	Streams, river, lakes, reservoirs

a/ High demand species.

a. Management Indicator Species*

The National Forest Management Act (NFMA) requires Forests to select a group of representative wildlife and fish species. By monitoring their populations and habitat relationships, we can use the effects of Forest Service management activities on all the fish and wildlife of the Forest. On the Dixie, we have selected a group of 12 of these Management Indicator Species (MIS) (Table II-12).

Mule Deer. Mule deer are the most abundant big game species on and adjacent to the Forest. Deer populations have been low in southern Utah for approximately 10 years, but are now recovering strongly. It is estimated that with the current rate of deer population growth, and continuing current programs, the Utah Division of Wildlife Resources (UDWR) population objective of 53,500 deer summering on the Forest can be met by the year 2000. As shown in Table II-12, mule deer can be found in every habitat type on the Forest. Mule deer have value as a management indicator species because the distribution of forage and cover and other habitat factors required to maintain healthy populations of this species will also ensure provision of the habitat requirements for many other species. One of the most important annual social events in the state of Utah is the opening weekend of the deer hunt.

Rocky Mountain Elk. Elk were selected as a Management Indicator species and for many of the same reasons as mule deer were selected because of the amount of public interest (both positive and negative) in them and for many of the same reasons as mule deer were selected. There are three separate major elk herds established on the Forest. There is also some "drift" of elk, on occasion, to other areas of the Forest.

- Boulder Mountain. This herd is currently estimated to contain about 600 animals. The herd was established in 1977-78 with a 2-year transplant program of 159 elk. The Forest Service and the UDWR are presently preparing an Elk Herd Management Plan for Boulder Mountain and the Forest Service has come up with a tentative population objective of 1,000 elk for Boulder Mountain.

- Mount Dutton. This herd was established with transplants in the 1930's. The herd currently contains approximately 600 animals. There are some distribution problems with this herd, in that there is a moderate amount of habitat available on the west side of Mount Dutton that the elk are only partially using, while some areas on the east side of the mountain are some times overused. The Forest Service estimate is that a 700 head elk herd will be maximum for this unit.

- Panguitch Lake. This herd became established through immigration from other herds. It currently has around 100 animals. The Forest Service estimate is that a herd of 300 head might be able to be established on this unit.

- Cedar Mountain. A relatively small area (about 8 percent) of this herd unit is on the National Forest. Although this small herd has been established for about 20 years, evidence of elk use on the Forest is very limited. Few, if any, elk from this unit have ever been harvested on the Forest.

- Pine Valley Mountains. Elk and elk sign are occasionally observed on the east slopes of the Pine Valley Mountains. They probably drift there from the Cedar Mountain herd.

- Paunsaugant. A small herd of elk are occasionally observed on the Paunsaugant area. They probably drift there from the Mt. Dutton herd.

These figures indicate that there are approximately 1,400 elk using the Forest at the present time. The tentative UDWR population objective; taken from the Region 4 Wildlife and Fish Assessment Data Base (August 1981) is 2,900 elk by 1990. Firm population objectives will be developed in the near future (1985 or early 1986) when the three Elk Herd Unit Management Plans are completed. The UDWR population goal may be met by increases in elk populations on adjacent state, private and BLM lands, however, the Forest has no control over this.

*Denote terms found in the glossary.

Wild Turkey. Turkey have been transplanted on all Districts, with good populations existing until about 1973. Since that time, populations have declined, apparently being limited by periodic severe winters. The UDWR feels that in order to maintain a viable population, periodic transplants may be necessary. The most recent transplant was of 80 birds to the Pine Valley Mountains in February, 1983. The Forest's current turkey population is estimated at 230 birds. The UDWR population objective for the Forest is 500 birds. Turkeys were selected as an MIS because of their requirement for relatively undisturbed habitat containing old growth ponderosa pine. Even though the population is currently quite small, there is considerable public interest in the species.

Goshawk. Goshawks will serve as a Management Indicator for old growth conifer and aspen. They typically nest in large diameter trees in dense conifer stands or in stands of tall (40-60') aspen. UDWR does not have a population objective for this species. Data concerning population trends for goshawks on the Dixie is lacking, but review of past and current management activities in relation to goshawk habitat requirements indicates a stable population.

Common Flicker. The common flicker is a primary cavity nester and will act as a Management Indicator of adequate habitat for other cavity nesting and snag using wildlife. The UDWR has no population objective for this species. As with the goshawk, it is estimated that the population trend for flickers is stable.

TABLE II-13
CURRENT, MINIMUM VIABLE AND MAXIMUM POTENTIAL POPULATION AND ACREAGE ESTIMATES FOR MIS
DIXIE NATIONAL FOREST

Species	Indicator Habitat	Minimum Viable Population	Acres required for Minimum Viable Pop.	Existing Population	Acres Existing Habitat	Maximum Potential Population	Acres Potential Habitat	Habitat at 2030
Mule Deer	All	2,000	120,000	31,500	1,883,770	56,000	,883,770	1,883,770
Rocky Mountain Elk	Aspen, Mixed couifer	360	230,676	1,200-1,300	800,960	3,000	,019,346	910,000
Wild Turkey	Aspen, Ponderosa Pine	150	256,000	230	640,000	* 500	973,000	640,000
Goshawk	Mature timber	40 pairs	192,000	68 pairs	326,400	93 pairs	446,400	326,400
Common Flicker	Standing Dead	9,325 pairs	373,000	11,900 pairs	476,000	23,310 pairs	932,400	668,000
Yellowbreasted Chat	Riparian	726 pairs	5,900	1,210 pairs	9,800	1,815 pairs	14,666	9,800
Bonneville Cutthroat trout	Streams	4,000 fish	7	4,000 fish	7	2.5 MM fish	2,500	
Resident Trout	Lakes, Reservoirs above 10,000 Feet	8 lbs. per ac.	3,100	20 lbs per ac 1/	31,000	20 lbs/ac.	5,000	
	Lakes below 10,000 Feet	40 lbs per ac.		100 lbs per ac 1/		100 lbs/ac.		
	Reservoirs below 10,000 Ft.	20 lbs per ac.		50 lbs per ac 1/		50 lbs/ac.		
	Streams in sedimentary materials	32 lbs per ac	255	80 lbs per ac	250		400	
	Streams in Volcanic Materials	24 lbs per ac.		60 lbs per ac		120 lbs/ac		
	Streams in granitic Materials	16 lbs per ac.		40 lbs per ac		80 lbs/ac		
Macroinvertebrates	Streams	BCI = 70				BCI = 100		

1/ Except lakes with known winter kill problems.

* DWR population goal. There is habitat for higher populations.

Yellowbreasted Chat. Chats prefer brushy riparian ecosystem. They will serve as a Management Indicator Species for riparian areas. The UDWR has no population objective for this species. The small amount of data available indicates a stable population trend (over the short term) for this species.

Aquatic Habitat Indicators. Because of the variety of aquatic habitats on the Forest, a combination of Indicator Species will be used. The native Bonneville cutthroat trout will be the MIS in those streams which contain native or transplanted populations. Rainbow, brown, brook, or cutthroat trout will be used in most streams and lakes on the Forest. The most common species in a particular water body will be the MIS in that area. If fish population data is not available for a particular water body, the macroinvertebrate biotic condition index (BCI)* will be used to assess fish habitat capability.

The Current, Minimum Viable* and Maximum Potential Population* levels of the various MIS have been estimated and are displayed in Table II-13. Minimum viable populations are estimated assuming adequate distribution of the animals so that reproduction can occur.

b. Diversity*

The Dixie National Forest is an inherently diverse area. Elevations range from 2,800 to above 11,000 feet. The Forest borders the Mohave Desert on the west (near St. George). Less than 25 miles away, at the top of the Pine Valley Mountains, you enter a subalpine coniferous forest. Similar habitat diversity occurs throughout the Forest. Much diversity is provided by the various vegetation types occurring on the Forest, and the successional stages of these types. Table II-14 displays the approximate acres within the vegetation types, and is further broken down by the existing and estimated optimum percent of each type within each successional stage. This table shows that several of the vegetation types on the Forest are dominated by advanced successional stages. Manipulation of these types to more closely approach the estimated optimum (Table II-14) mix of successional stages could increase production while improving diversity.

Manipulation to improve diversity and enhance wildlife habitat must be planned and conducted very carefully to maintain maximum habitat effectiveness. High densities of open roads do more to negatively impact wildlife habitat effectiveness than anything else. Research indicates that road densities of one mile per square mile of habitat reduce habitat effectiveness for elk to 74% and for deer to 93%, while two miles of open road per square mile reduce elk habitat effectiveness to 60% and deer habitat effectiveness to 84%. Four miles of road decrease elk habitat effectiveness to 40% and deer habitat effectiveness to 50%. The negative effects of roading on most other wildlife are similar to those discussed for deer and elk, except they are not so well documented.

c. Vegetation Types

The dominant vegetation types on the Forest are discussed in terms of quantity and quality as they relate to specific habitats for the MIS. Total acres in each type and approximate percent in each successional stage is shown in Table II-14.

Aspen. This type is potentially one of the most productive for forage on the Forest. Of 183 species of Forest dwelling birds and mammals, 164 of them (89.6%) use the aspen type. Much of the aspen on the Forest is in a mature to decadent condition with little regeneration evident. A significant amount of aspen is also being lost to conifer invasion. Small clearcuts, burning, and/or herbicide treatment would improve the aspen age distribution and improve wildlife habitat within the type. Management indicator species making heavy use of aspen are: mule deer, elk, wild turkey, goshawk, and common Flicker.

Mountain Brush. Increased diversity in this productive type could be achieved through various methods of vegetative manipulation. Although community composition would not change significantly, a mosiac of different aged stands would result in improved vertical and horizontal diversity and forage production. Management indicators for this type are: mule deer and wild turkey.

Spruce-fir. This vegetation type is dominated by contiguous areas of mature uneven aged stands characterized by a sparse understory. Diversity could be improved by coordinating wildlife needs with timber harvest to create well distributed, irregular shaped openings and some open stands with brushy understory vegetation. The MIS most closely associated with this type are elk and goshawk.

Mixed Conifer. Opportunity exists to increase diversity in this type because of high productivity and the abundant tree and understory species present. The type is currently composed of a high proportion of older age classes with little regeneration. Treatment to benefit wildlife would be similar to that applied in the spruce-fir. Management indicators most closely associated with this vegetation type are elk and goshawk.

Pinyon-Juniper. Approximately 50,000 acres of this type has been manipulated by chaining and seeding over the last 20-25 years. These chainings provide diversity and much needed forage, especially in the spring for big-game species. Only a few thousand acres of pinyon-juniper remain where chaining would be feasible, although manipulation by burning could be done on several thousand more acres. Mule deer make more use of this type than any other MIS.

Sagebrush. Chaining, burning, and spraying projects have been conducted on several thousand acres of sagebrush range on the Forest. The situation here is similar to the pinyon-juniper treatment providing diversity and forage for big-game animals. Mule deer make more use of this type than any MIS.

Ponderosa Pine. The pine type is our most productive timber growing area. Wildlife habitat diversity could be improved by harvesting timber using methods sensitive to the requirements of wildlife. Wild turkeys are more closely associated with this type (especially old growth) than any other MIS.

Strict guidelines for the protection of turkey habitat will be required in this type (see IV).

Riparian Areas. These may occur as a relatively narrow (by definition; 200 feet wide) strip along streams or as small patches around seeps or springs or along the shoreline of lakes or ponds. Riparian areas in good condition are naturally diverse; artificial manipulation is not likely to improve upon good condition riparian or wet meadow areas. Many of the riparian areas on the Forest are not, however, in good condition. Manipulation in the form of replanting with native growth (willows, carex, etc.) and protection from livestock would help many of the poor condition areas recover. These areas attract many species of wildlife. Wildlife species diversity in good condition riparian areas is probably greater than in any other habitat. The yellow-breasted chat is the Forest's management indicator for the riparian type. This large wood warbler prefers riparian ecosystems with relatively dense tangles of willows or other shrubby species.

TABLE II-14
DIXIE NATIONAL FOREST SUMMARY OF PERCENT OF LAND AREA IN EACH SUCCESSIONAL STAGE OF EACH MAJOR VEGETATIVE TYPE

			Successional Stages1/							
Vegetation	Range		Existing				Desirable 2/			
Type	Type	Acres	Early	Mid	Mature	Old Growth	Early	Mid	Mature	Old Growth
Grass-Forb	1,2d, 2w,3	157.851	25	45	30	0	10	45	45	0
Sagebrush	4	221.662	10	15	75	0	10	15	65	10
Mountain Brush	5	136.254	1	0	99	0	20	20	50	10
Pinyon-Juniper	9	442,406	5	5	45	45	30	25	35	10
Aspen	10	105.792	5	5	45	45	30	25	35	10
Ponderosa Pine	6	209,672	25	30	35	30	40	25	25	10
Mixed Conifer	6	200,246	10	10	40	40	40	25	25	10
Spruce-Fir	6	111.751	5	5	40	50	40	30	25	10
Riparian		19.000								

1/ Timber inventory data on the Forest does not include sufficient information to derive estimates on successional stages. Information displayed here is based on field observation.

2/ Early through mature successional stages required for mule deer and elk. Mature and old growth stages constitute important habitat components for other MIS.

d. Aquatic Habitat

The Dixie National Forest provides habitat for trout in over 3,100 acres of lakes and reservoirs and 330 miles of streams. The average habitat condition for fishery streams on the Forest is estimated to be 65 percent of optimum. Stream habitat is presently degraded in some areas by lack of streamside cover, high sediment loads, poor bank stability, and lack of pools. The average fish production for lakes and reservoirs on the Forest is estimated to be 70 percent of potential. Fish production in Forest lakes is presently limited by winter kills, fluctuating water levels, excessive aquatic vegetation, low nutrient levels, and competition from nongame fish.

Habitat condition in a number of lakes and reservoirs on the Forest is declining due to accelerated eutrophication.* Of particular concern is the declining quality of two of the Forest's largest lakes. Panguitch Lake is the Forest's largest and presently its most productive lake. Continued deterioration of water quality could reduce fishing quality in the near future. Navajo Lake, the Forest's second largest lake, presently experiences frequent winter kills which reduces its fish production potential.

e. Threatened, Endangered and Sensitive Species

Mammals. The Utah prairie dog (*Cynomys parvidens*) is a federally listed "threatened" species (recently downlisted from endangered). The species historically occurred in 9 Utah counties, with the total population exceeding 95,000 animals. Habitat modification and extermination campaigns reduced the distribution to 5 counties.

The Forest is presently cooperating with UDWR and other federal agencies in an effort to re-establish sufficient populations of prairie dogs on public land so that the species can be delisted*. The Forest has designated 11 transplant sites for prairie dogs. Some of these sites are currently occupied; the others are historic prairie dog towns. No critical or essential habitat has been formally designated for the Utah prairie dog.

Birds. The bald eagle (*Haliaeetus leucocephalus*) is federally classified as "endangered" and occurs on the Forest during the winter months. Bald eagles are commonly seen in winter along many of the lower elevation streams on the Forest where suitable roost trees are available. Essential habitat has not been identified on the Forest.

The peregrine falcon (*Falco peregrinus*) may occur on the Forest in the spring and summer. Peregrines breed at Zion National Park and at Bryce Canyon National Park. Peregrines are almost certainly hunting on the Forest. Some could be nesting on the Forest.

Fish. The Bonneville cutthroat trout (*Salmo clarki utah*) has been classified by Region 4 of the Forest Service as a "sensitive" species. The species occurs as a genetically pure strain in three streams on the Forest at present. The UDWR is planning to use these populations to provide transplant stock for other suitable habitat areas on and around the Forest.

Plants. Table II-15 lists plants found on the Dixie which are federally classified. Only one species; *Astragalus perianus* is officially listed by the U.S. Fish and Wildlife Service (USFWS) as threatened. This species is found in the vicinity of Mount Dutton at elevations around 10,000 feet. It is associated with mixed grass-forb and spruce-fir communities and grows in very shallow, rocky soils.

TABLE II-15
THREATENED AND SENSITIVE PLANT SPECIES ON THE DIXIE NATIONAL FOREST

Scientific Name	Common Name	Family	Threatened	R-4 Sensitive	* UNPS Recognized
Astragulus barnebyi	Barneby milkvetch	Fabaceae		X	
Astragalus lentiginosus var.ursinus	Bear Valley milkvetch	Fabaceae		X	
Astragalus limnocharis	Navajo Lake milk vetch	Fabaceae		X	
Astragalus perianus	Rydberg milkvetch	Fabaceae	X		
Castilleja aquariensis	Aquarius paintbrush	Scrophulariaceae		X	X
Castilleja parvula var. parvula	Tushar paintbrush	Scrophulariaceae		X	X
Castilleja parvula var.	Reveal paintbrush	Scrophulariacae		X	
Cryptantha ochroleuca	Yellow-white catseye	Boraginaceae		X	X
Cymopterus minimus	Cedar Breaks Biscuitroot	Apiaceae		X	
Erigeron proselyticus	Cliff daisy	Asteraceae		X	X
Eriogonum aretioides	Widtsoe buckwheat	Polygonaceae		X	X
Gilia caespitosa	Rabbit Valley gilia	Polemoniaceae		X	
Heterotheca jonesii	Jones golden aster	Asteraceae		X	
Lepidium montanum var. neeseae	Neese peppergrass	Brassicaceae		X	X
Festuca dasyclada	Sedge fescue	Poaceae			X
Penstemon bracteatus	Red canyon beardtongue	Scrophulariaceae		X	X
Haplopappus zionis	beardtongue	Asteraceae			X
Penstemon parvus	Small Beardtongue	Scrophulariaceae		X	
Psoralea pariensis	Paria breadroot	Fabaceae		X	
Silene petersonii var.minor	Red Canyon catchfly	Caryophyllaceae		X	
Astragalus henrimontanensis	Dana Milkvetch	Fabaceae			X
Hymeuoxys helenioides		Asteraceae			X
Silene petersonii var. petersonii	Plateau catchfly	Caryophyllaceae			X
Sphaeromeria capitata		Asteraceae			X

*Utah Native Plant Society

f. Wildlife Outputs (Demand)

Table II-16 displays the current and projected outputs in Wildlife and Fish User Days* (WFUDS), assuming continuation of current programs. The wildlife resource is primarily a recreation type output. The demand for wildlife related recreation has increased in line with other types of Forest recreation, and is expected to continue this increase throughout the planning period. Under the Current Program, however, availability of terrestrial wildlife (primarily consumptive use) may only be able to meet increasing demand up to a certain point. Beyond that, decreased hunt success and quality of the experience may cause a leveling off of the terrestrial WFUD outputs as hunters choose to go elsewhere, where success is better.

Demand for fishing on the Forest is expected to increase as the area's population increases. Overall dispersed recreation demand, which includes fishing, is expected to increase by 570 percent by the end of the planning period. During this same time period fish production on the Forest is expected to decrease due to continued degradation of lake habitat.

TABLE II-16
WILDLIFE AND FISH USER DAYS (WFUDS), CURRENT AND PROJECTED, ASSUMING CONTINUATION OF CURRENT PROGRAMS

Year or Decade	Terrestrial WFUDS Consumptive & Nonconsumptive	Aquatic WFUD's	Total WFUD's
1983	97,418	48,350	145,768
1984	107,932	48,400	156,332
1985	109,000	48,450	157,450
1990	122,319	48,760	171,074
2000	130,579	52,066	182,645
2010	130,579	51,240	181,819
2020	130,579	49,587	180,166
2030	130,579	47,934	178,513

g. Wildlife and Fish Habitat Improvement and Maintenance

Table II-17 shows the acres of habitat and number of structures that have been improved, constructed and maintained during the last 5 years. Accomplishments vary greatly from year to year, depending on funding available (PM, O&M, KV, etc.) each year. Lack of maintenance accomplishments from 1979 through 1981 is probably more a result of incomplete reporting than maintenance work not actually being done.

h. Wildlife Transplants and Reintroductions

A number of wildlife species have been established (or reestablished) on the Dixie by transplants or reintroductions. Rocky Mountain elk and wild turkeys are the best examples. Mule deer have transplanted in some areas to supplement low existing populations. The forest's pronghorn population on Parker Mountain is the result of an extremely successful transplant in 1964-1965, and that population is now the source for pronghorn transplant stock to other areas.

From time to time during the Planning Horizon, the opportunity to conduct transplants or reintroductions of certain fish or wildlife species may occur. Some interest has been shown in the possible introduction (or reintroduction) of desert bighorn sheep in the Box-Death Hollow, the Canaan Mountain, and the Pine Valley Mountain areas. These proposals, when submitted through formal channels will be acted upon on a case-by-case basis as per FSM 2640 and other appropriate sections of the Forest Service Manual.

TABLE II-17
WILDLIFE AND FISH HABITAT IMPROVEMENT AND MAINTENANCE, FY 1979 THRU FY 1984

Year	Terrestrial Acres	Terrestrial Structures	Aquatic Acres	Aquatic Structures	Maintenance Acres	Maintenance Structures
1979	781	113	100	10		
1980	466	131	125			
1981	833	23	22	17		
1982	268	7	7	15	60	18
1983	542	17	5	25	410	25
1984	770	10	0	20	100	16

4. Range

There are 104 grazing allotments on the Dixie National Forest; 81 cattle and 23 sheep allotments. Approximately 20,000 head of cattle and their calves and 25,000 head of sheep and their lambs are permitted on the Forest. Table II-18 displays additional range management statistics.

TABLE II-18
RANGE MANAGEMENT STATISTICS, 1983
FOR THE DIXIE NATIONAL FOREST

Total Forest Acres	1,883,500
Suitable Range Acres in Allotments	685,793
Suitable Range Acres Outside Allotments	0
Good Condition Range Acres	262,090
Fair Condition Range Acres	312,992
Poor Condition Range Acres	110,722
Total Allotments	104
Cattle Allotments	81
Sheep Allotments	23
Permitted Cattle	20,000 + Calves
AUM's*	97,000
Permitted Sheep	25,000 + Lambs
AUM's	18,000
Total Grazing Capacity (AUM's)	115,000
Actual Grazing Use (5 year average)	112,000
Wildhorse Population (partly on BLM)	40-60 Head
AUM's	350
Recreation Use (Horses)	
AUM's	500

The Forest has only a portion of the livestock grazing that occurred during the late 1800's and the early 1900's. Severe overgrazing took place in many areas during that time. In the 1940's a program of livestock reductions, range reseeding and allotment management planning was begun.

Only a few downward adjustments in livestock numbers and/or season of use have been made in the last ten years. In many cases, reductions have been avoided by accomplishing revegetation projects, developing additional water and/or modifying grazing systems.

To date, approximately 142,000 acres of depleted rangeland on the Forest have been reseeded. For the most part, these seedings have been very successful and provide a large proportion of the forage consumed by livestock and big game on the Forest. Several hundred miles of fence have been constructed on the Forest boundary and within allotments to control livestock distribution. Hundreds of water developments have been constructed by the Forest Service to provide water to livestock and wildlife in dry areas.

As of 1984, all of the 104 allotments on the Forest have an approved Allotment Management Plan. All of these plans are currently implemented. Range Analysis has been completed on all allotments. Table II-19 summarizes the Forest's range analysis data.

TABLE II-19
RANGE ANALYSIS DATA SUMMARY
DIXIE NATIONAL FOREST

Condition Class	Acres	% of Total
Good	262,090	38%
Fair	312,992	46%
Poor	110,711	16%

Suitable Acres by Trend

Trend	Acres	% of Total
Up	423,703	61%
Down	0	-
Stable	262,090	39%

Suitable Acres by Vegetation Types

Vegetation Type	Acres	% of Total
Grassland	129,205	19
Wet Meadow	4,781	1
Dry Meadow	10,820	2
Perennial Forb	568	1
Sagebrush	181,589	25
Browse	67,263	10
Conifer	126,649	18
Pinion-Juniper	70,377	10
Deciduous Trees	94,541	14

In addition to domestic livestock grazing, a wild horse herd of 40-60 animals grazed on the Forest for part of the year northwest of Enterprise, Utah. The herd moves between Forest Service and BLM administered lands, and a joint FS/BLM management plan has been prepared for the herd.

Noxious weed control on the Forest is directed primarily at Scotch thistle (Onopordum acanthium) which has invaded southwestern Utah in the last few years. In addition, musk thistle (Carduus nutans) and Canada thistle (Cirsium arvense) are also moving into the area.

The Forest management goal is to keep the range resource in an upward trend when it is in less than good condition, and in a static trend when it is in good condition. Maintaining this goal will result in continued improvement of the Forest's range resource. This does not mean that more AUMs will be produced, but that plant composition, ground cover, etc., will be improved. Livestock numbers, seasons of use and distribution will remain approximately the same throughout the planning period.

Demand Analysis. In terms of 1982 dollars the value of an AUM of grazing on the Dixie National Forest is $8.06. Fees that National Forest permittees pay has ranged from $1.35 to $2.50 per AUM over the last few years.

At the present fee levels charged for livestock grazing, the supply is fully utilized. It is not anticipated that this situation will change during the planning period. There are thousands of head of additional cattle and sheep on ranches adjacent to the Forest that ranchers would be willing to graze on the Forest if the opportunity were available.

Table II-20 displays the AUM outputs for the planning period, assuming continuation of current programs. For comparison purposes, the table also displays the Regional (RPA 1980) objective for the Forest and the maximum AUMs that could be produced with no constraints on range management methods and techniques.

TABLE II-20
ANIMAL UNIT MONTH (AUM) OUTPUTS UNDER CURRENT PROGRAM
RPA 1980 FOREST OBJECTIVES AND UNCONSTRAINED RANGE MANAGEMENT
(All outputs in M AUMS)

	1985	1990	2000	2010	2020	2030
Current Program	115	115	115	115	115	115
RPA 1980 Objective	116	119	121	121	122	123
Unconstrained	115	119	124	130	136	142

Feasibility Analysis. The grazing capacity has essentially been determined on the lands classified as suitable for livestock grazing on the Forest under present climatic conditions and in coordination with the other existing land uses. Therefore, if livestock use is to be increased significantly it would have to be done through practices such as:

a. Climatic alteration - increasing precipitation on the arid rangelands.

b. Introduction of new forage species that will greatly out produce the species currently growing on the suitable rangeland.

c. Conversion of commercial timber producing lands to forage producing lands and making them suitable for grazing by developing water, etc.

d. Developing an economical means of converting steep mountain brush types, currently classified as unsuitable for livestock grazing, to suitable forage producing rangelands.

e. Changing classes of livestock from cattle to sheep on some of the allotments. (This proposal would be unacceptable to many of the present cattle permittees.)

Since none of these practices are considered feasible or cost efficient at this time, the present and projected livestock grazing capacity for the Forest will need to remain as it is until there is a technical "breakthrough" in one or more of these areas.

5. Timber

a. Land Suitability

Some 331,200 acres have been classified as available and tentatively suitable for timber production on the Dixie National Forest (Table II-21). This figure was determined in accordance with regulations in 36 CFR 219.14 by the following procedure:

- Total net acres of the Dixie National Forest were classified as water acres and land acres.

- Land area was classed as either forest land (at least 16 percent currently stocked by trees or formerly stocked) or non-forest land.

- The initial regulations in 36 CFR 219.14 required that lands failing to meet the minimum biological growth standard of 20 cubic feet per acre per year set forth in the Draft Regional Plan be classified as unsuitable for timber production. This requirement was later dropped, and instead, these lands are now to be analyzed for their productive capability.

Some of the lands in question can produce marketable industrial products, but most cannot. These lands generally support unmarketable species or trees having poor form or have substantial areas of surface rock and rock cliffs. The value of products that could be sold is low, and the cost of management would be high.

The shortage of time to judge growth response and obvious lack of potential economic productivity for most of these lands suggest that they should now be classified as unsuitable.

In lieu of immediate analysis, the Forest will gather information about the suitability of these low producing sites (less than 20 cubic feet of wood per acre per year) during the next scheduled Forest-wide timber resource inventory. After inventory data have been collected, land suitability will be analyzed in accord with 36 CFR 219.14. If the difference between the existing Forest Plan and the new analysis is significant, the Forest Plan may be revised in accordance with 36 CFR 219.1 (g).

- Lands determined to be productive were judged for their availability for timber production. Not available lands are those potentially productive forest lands legislatively or administratively withdrawn from timber production. This classification includes wilderness, research natural areas, and administrative sites.

Certain productive timber lands are classified as not available on the Dixie National Forest. With the passage of the Utah Wilderness Act of 1984, some productive timber lands have become unavailable and appropriate acreage adjustments have been made.

TABLE II-21
LANDS AVAILABLE AND TENTATIVELY SUITABLE FOR TIMBER PRODUCTION
DIXIE NATIONAL FOREST

Land Classification

Classification	M Acres
1. Non-Forest land (includes water)	1204.9
2. Forest land	678.8
3. Forest land withdrawn from timber production-(not available)	28.5
4. Forest land not capable of producing crops of industrial wood	236.6
5. Forest land physically unsuitable: irreversible damage likely to occur;	82.5
not restockable within 5 years	0
6. Forest land - inadequate information 1/	0
7. Tentatively suitable forest land (item 2 minus items 3, 4, 5, and 6)	331.2

TABLE II-21 CONT'

Classification	M Acres
8. Forest land not appropriate for timber production 2/ (display acres by management emphasis)	31.1
9. Unsuitable forest land (Item 3, 4, 5, 6, and 8	378.7
10. Total suitable forest land (Item 2 minus item 9)	300.1
11. Total national forest land (items 1 and 2)	1883.7

1/ Lands for which current information is inadequate to project responses to timber management.

2/ Lands identified as not appropriate for timber production due to: (a) assignment to other resource uses to meet Forest plan objectives; (b) management requirements; and (c) not being cost efficient in meeting Forest plan objectives over the planning horizon.

TABLE II-22
VEGETATION MANAGEMENT PRACTICES
(ANNUAL AVERAGE IN FIRST DECADE FOR SUITABLE LANDS)

Practice	Acres
Regeneration harvest:	
Clearcut	578
Shelterwood and seed tree	
- Preparatory cut	0
- Seed cut	514
- Removal cut	4433
Selection	75
Intermediate harvest:	
Commercial thinning	4850
Salvage/sanitation	75
Timber stand improvement	5000
Reforestation 1/	1588

1/ Includes natural and artificial.

TABLE II-23
TIMBER PRODUCTIVITY CLASSIFICATION

Potential Growth (cubic feet/acre/year	Suitable Lands (acres)	Unsuitable Lands (acres)
Less than 20	0	241,667
20-49	89,424	64,193
50-84	241,776	67,140
85-119	0	0
120-164	0	0
165-224	0	0
225+	0	0

TABLE II-24
ALLOWABLE SALE QUANTITY AND TIMBER SALE PROGRAM QUANTITY 1/
(ANNUAL AVERAGE FOR FIRST DECADE)

Harvest Method	Allowable Sale Quantity 2/ Sawtimber (MM CF)	Other Products (MM CF)
generation harvest:		
Clearcut	0.68	0
Shelterwood and seed tree		
- Preparatory cut	0	0
- Seed cut	0.25	0
- Removal cut	1.59	0
Selection	0.03	0
termediate harvest:		
Commercial thinning	2.38	0.2
Salvage/sanitation	0.03	0
	-------	------
	4.96	0.2

	Additional Sales 3/ Sawtimber (MM CF)	Other Products (MM CF)
Total for all harvest methods	0	1.87

Allowable sale quantity 5.16 (MMCF) 25.7 (MMBF) 4/
Timber sale program quantity 5/ 7.03 (MMCF) 32.2 (MMBF) 4/

1/ Expressed to the nearest .1 MM board and cubic feet.
2/ Includes only chargeable volumes from suitable lands.
3/ Includes only nonchargeable volumes from suitable and/or unsuitable lands.
4/ Based on local unit of measure.
5/ Total of allowable sale quantity and additional sales.

FIGURE II-1
DISPLAY OF LONG-TERM SUSTAINED YIELD AND ALLOWABLE SALE QUANTITY

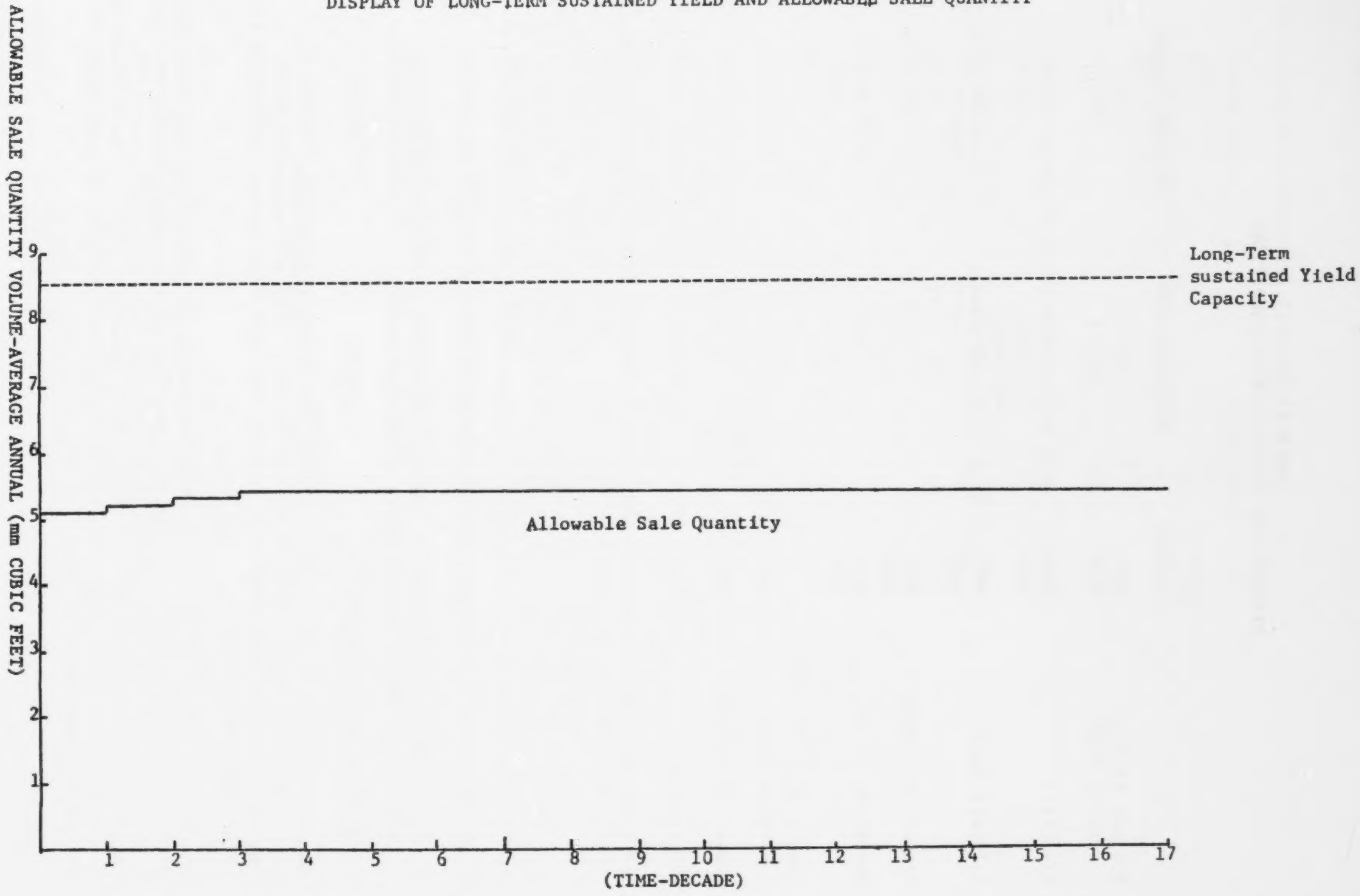


TABLE II-25
PRESENT AND FUTURE FOREST CONDITIONS

	UNIT OF MEASURE	SUITABLE LAND	UNSUITABLE LAND
Present forest: Growing stock	MMCF	316.7	357.1 1/
	MMBF	1425.1	1607.0
Live cull	MMCF	9.9	11.1
	MMBF	99.8	112.5
Salvable dead	MMCF	No Data	No Data
	MMBF		
Annual net growth	MMCF	3.5	No Data
	MMBF	17.3	
Annual Mortality	MMCF	2.5	2.8
	MMBF	14.2	16.0
Future forest: (2030) Growing stock	MMCF	275.4	
Annual net growth	MMCF	3.5	
Rotation age	Years	110 2/ to 140	

	Age Class	Present Forest	Future Forest (2030)
Age class distribution acres (suitable lands)	0-20	6473	28759
	21-60	174	37366
	61-80	129857	174
	81-100	161410	0
	101+	2152	233767

1/ Approximation Based on Incomplete Data.

2/ Average rotation age for regenerated stands on lands with timber emphasis by major forest types.

b. Existing Situation

Description - Based on Approved 1975-85 Timber Management Plan. There are eight commercial timber species on the Forest. They are ponderosa pine, Douglas-fir, white fir, Engelmann spruce, Colorado blue spruce, subalpine fir, limber pine, and aspen.

According to the 75-85 plan, the Forest contains an approximate net board foot volume of 2,844,777 MBF*. An analysis was made of the commercial Forest land in the forest to segregate acreages and volumes into standard*, special*, marginal*, and unregulated* components which generally reflect the influences of economics and associated resource protection constraints on management of the timber resource.

The 75-85 Plan shows the following data:

Stand Size	% of Total
Sawtimber	83
Poles	10
Seedlings/Saplings	6
Non-Stocked	1
	100%

Site Quality of Commercial Forest Land

Site Class	Production C.F.*/Ac./Yr.	% Of Total
Excellent	225+	0
Good	165 - 225	0
Medium	85 - 165	29
Poor	50 - 85	69
Very Poor	20 - 50	2
		100%

Area Data

	M Acres
Net National Forest Land	1884.5
Total Forested Land	1457.1
Total Productive Forest Land	609.6
Productive Deferred	30.9
Productive Reserved	-
Commercial Forest	578.7
Standard	309.4
Special	77.2
Marginal	190.3
Unregulated	1.8

Growth and Mortality - All Productive Forest Land

Gross Annual Growth (MBF)	Annual Mortality (MBF)	Total Net Growth (MBF)
44,395	10,860	33,535

Potential Annual Yield 1/

	MBF
Standard Component	17,175
Special Component	2,211
Marginal Component	10,040
TOTAL	29,426

1/ Potential annual yield. The average annual amount of commercial timber harvested for the next 10 years which is the maximum harvest that could be planned to achieve the optimum perpetual sustained yield level attainable under intensive management.

Programmed Average Annual Harvest 2/

	MMBF
Standard Component	18.7
Special Component	0.8
Marginal Component (Dead Spruce)	0.6
Unregulated	0.1
TOTAL	20.2

2/ Programmed Average Annual Harvest. That portion of the potential yield that is actually scheduled for harvest expressed as an average annual volume per year for the next ten year period.

Problem Situations Affecting Timber Harvest. A mountain pine beetle epidemic currently affects about 30,000 acres on the Forest. A harvest program is underway on the Escalante District to reduce the effects of this epidemic. A western spruce budworm outbreak affects about 45,000 acres on the Cedar City District. Other insect populations remain at endemic levels. Dwarf mistletoe in Douglas-fir is a serious disease problem and mainly affects the timber stands on the Powell District. Dwarf mistletoe and limb rust are found in ponderosa pine throughout the Forest. They are primarily in scattered pockets throughout the type. Porcupine feeding has created many unmerchantable and poor quality trees throughout the ponderosa pine type.

Until recent years, most timber harvesting occurred in the ponderosa pine type, with less volumes harvested from the mixed conifer type. Early harvests were mainly selection and sanitation-salvage harvests with little emphasis on regeneration. Large areas of spruce-fir remain uncut with heavy volumes of old growth. Seedlings, saplings, and poletimber are proportionately lacking in many areas of all timber types.

Policies, Silvicultural Systems, and Cultural Treatments. Timber management policy is currently based on a broad classification of land use classes (LUC); Standard,* Special,* and Marginal* as described in the 75-85 Timber Plan.

Commercial Forest Land (CFL) must have potential to produce 20 cubic feet per acre per year. If growth potential is lower, land is classed as non-commercial.

Timber is currently managed intensively in the Standard LUC to the extent that management practices are compatible with other resource values. Management objectives in the Special LUC relate to values other than timber production (e.g., visual quality, etc.).

Timber harvest is constrained in the Special LUC for visual quality or other stated objectives. Timber harvest has been limited in the Marginal LUC because of inaccessibility (excessive development costs), slopes too steep for tractor logging, excessive regeneration costs, or inability to regenerate the area within five years of harvest. Nearly all harvested timber has been from the Standard LUC. Limited cable logging has occurred on Escalante and Teasdale Ranger Districts during 1983 and 1984. Insignificant sanitation and salvage harvesting may be done on unsuitable land to counter insect and disease buildups and impacts.

Prescriptions for stand treatment on the Forest have been based on the species and the particular area involved. The principles of even-aged and uneven-aged management are being followed therefore, harvest cutting ranges from clearcutting through shelterwood to the selection system. Some intermediate cutting is desirable to improve stand condition, utilize timber which may be lost through mortality and to make economic sale offerings. The application of modified cutting practices has been necessary in some areas to meet management objectives for the specific area.

Reforestation is a continuing practice where final timber harvest has taken place. Historically, plantation survival for all species has averaged about 50 percent. Seedling survival has increased during the last few years by using better site preparation, planting techniques, use of containerized seedlings and plantation protection.

Precommercial thinning is also a standard recurring practice, mostly in ponderosa pine. Many thinned areas have not responded well. In the absence of a small roundwood market, areas thinned before 1980 may need a second precommercial entry to produce sawtimber size trees within 80 - 100 years. Recent thinning applications using wider tree spacing have shown improved gains in diameter growth including these in the Engelmann spruce type.

All timber harvest and cultural treatments applied will be consistent with the silvicultural prescription for each stand. Prescriptions will be consistent with the environmental assessment for each timber sale or project and follow standards and guidelines set forth in the Forest Plan (chapter IV) and Regional Guide (3-13 to 25). These tiering documents contain direction to manage the Forest toward the desired future condition.

Past Production. Following is a table of recent 10 years' production from the Forest:

TABLE II-26
TIMBER PRODUCTION FROM THE FOREST

YEAR (FY)	SAWTIMBER (MBF)	ASPEN CORDWOOD (MBF) 1/	POSTS & POSTS MBF	FUELWOOD COMMERCIAL	(CORDS) PERSONAL USE 3/
1975	17,401	83	79	1,361	NA
1976	14,384	541	103	709	8,351
1977	21,826	1,147	126	1,545	29,182
1978	20,255	90	223	665	22,965
1979	17,722	40	86	1,004	32,637
1980	21,604	373	157	1,057	32,061
1981	18,389	207	303	1,066	28,348
1982	9,845	35	338	827	36,360
1983	12,227	0	231	461	17,018
1984	24,765	0	209	472	13,596
TOTAL	177,878	2,516	1,855	9,167	220,518
AVERAGE	17,788	252	185	917	24,502

1/ The cordwood production of the Forest has been primarily aspen used for excelsior. The demand for this product is now less than in earlier years.

2/ NA - information not available.

3/ These figures reflect permitted removal. Actual removal may be substantially less.

Other ownerships and other National Forests contribute only minor insignificant volumes to local mills.

Adjacent Landowners. There are minimal conflicts with adjoining land and timber production on the Forest.

c. Current Management Direction

The current timber management direction is expressed in the 1975-1985 Timber Management Plan. Management direction is also further defined in the various planning unit Land Use Plans. Briefly stated, current timber management direction is to:

-Obtain optimum use of the timber resources.

-Offer for sale the full potential yield of the standard and special components.

-Assure timber harvesting is compatible with all other resource values.

-Reforest nonstocked areas and increase stocking on understocked areas.

-Improve the quality and/or growth rate of immature timber stands through timber stand improvement work.

d. Future Conditions if Current Direction is Continued

Long range objectives for timber management in the 75-85 Plan include achieving a balance in the distribution of age classes. However, if curent direction is continued, this balance would not be reached until the year 2216, for ponderosa pine and mixed species in the Standard Component and the year 2056 for aspen in the Standard Component.

The following tabulation shows information from the 75-85 Plan on six class distribution within all the Commercial Forest Land acres:

TABLE II-27

Size Class	Year 1975	Year 2030
Seedlings/Saplings	6%	14%
Poles	10%	29%
Sawtimber	83%	57%
Non-Stocked	1%	-
TOTAL	100%	100%

At the year 2030, under current management direction, many acres of Commercial Forest Land would remain unharvested - including essentially all of the marginal component.

The following is the likely flow of timber outputs to the year 2030 if current direction (from the 75-85 Timber Plan) is continued:

TABLE II-28

FY	Average Annual Offerings (MMBF)
1981	33.1
1982	28.8
1983	25.8
1984	25.4
1985	24.3
1986 - 1990	23.0
1991 - 2000	20.2
2001 - 2010	20.2
2011 - 2020	20.2
2021 - 2030	20.2

(Note: Offerings through 1990 reflects accelerated sale efforts to control mountain pine beetle in ponderosa pine)

e. Demand Analysis

Discussion. All of the sawtimber from the Dixie National Forest is purchased and manufactured locally. The local communities Panguitch, Escalante, and a few smaller communities depend largely on forest products for their economic base. Over the past several years, the Forest has offered a steady supply of products to provide for economic and social stability in these dependent communities. Market areas served by local manufacturers include Southwestern markets and areas as for east as Pennsylvania. Receipts from timber sales returned to the counties have aided in programs such as schools and roads.

The present slump in the building industry nationally has resulted in a temporary decline in timber demand. Selling values (wholesale) for manufactures wood products from the mills are down, and labor and fuel costs are increasing.

Long-term growth of population and the economy in the regional marketing area should sustain an increased demand for Dixie National Forest sawtimber. Within reasonably expected out put levels, there will be a demand for Dixie National Forest sawtimber in excess of the supply.

The Forest does not have a roundwood market for paper production. Aspen is being sold periodically by the cord for the manufacture of excelsior. This limited demand is expected to fluctuate and possibly decline. Aspen has been harvested on a very limited basis by Kaibab Industries and a couple of smaller mills as sawtimber. The current demand for aspen is significantly below the potential yield. An opportunity exists for the utilization of aspen and conifer roundwood for flakeboard, waferboard or similar products.

There is a demand from local rancher and residences for some posts, poles, rough-sawn corral boards, and cabin logs. The demand for posts, poles, and corral boards has been fairly constant over the past several years. The demand for cabin logs is increasing with the development of summer home areas in and around the Forest.

The demand for fuelwood increased substantially in 1977. This was probably due to the sharp increase in fuel oil and electric rates. The impact of this demand was felt the hardest by the Cedar City and Pine Valley Districts. The demand centers are from Cedar City and St. George, Utah and Las Vegas, Nevada. There are a substantial number of people who travel from southern California to the Forest for a recreation experience and return home with a load of fuelwood. Figures for 1981 show a decrease in demand for personal use permits.

No significant differences are foreseen between Regional and Forest demand trends.

Consideration of the Cumulative Effects of National Forest Timber Sale Levels of the Proposed Action

Communities in the Dixie National Forest Primary Zone of Influence are dependent to varying degrees on the contribution of timber industry to their economics. This is especially true in Panguitch and Escalante, Utah and several small communities in Wayne County, Utah. The Dixie National Forest is the primary source of raw materials supplied the timber industry in these areas. Negligible amounts of timber are supplied from private lands. Small amounts of timber are supplied to industry in the Dixie Zone of Influence from the Fishlake National Forest and 10-12 MMBF in small logs are transferred annually from Kaibab Industries mill in Fredonia, Arizonia (mainly from the Kaibab National Forest) to Kaibab's mill in Panguitch, Utah.

The stability of local communities dependent on the timber resource in the Dixie Zone of Influence from the latter part of the first decade through the fourth decade of the planning horizon will largely depend upon overall market prices for timber and the ability of local industry to adopt to changing products from the Dixie National Forest, including smaller material and increasing amounts of aspen. The cumulative effects of timber supplies from surrounding National Forests and private lands on local industries should provide for a stable supply of timber from these sources. Contributions from private lands will probably remain negligible while planned harvest levels on the Fishlake National Forest (as of this writing) will remain close to historical levels (3 MMBF/year) in the first decade and could increase to 9 MMBF of softwood sawtimber in the second decade of the planning horizon. This could reduce dependence on aspen from the Dixie National Forest. The Fishlake National Forest also has a significant inventory of aspen volume. Any increased contribution to timber industry in the Dixie Zone of Influence from the Fishlake National Forest will depend on market prices sufficiently high enough to offset higher hauling costs. Log transfers by Kaibab Industry should not be affected as much by harvest levels on the Kaibab National Forest as by prices commanded for timber products that will effect the economics of log transfer.

Estimated Mill Capacity. Two major purchasers of sawtimber on the Forest are Kaibab Industries and Allied Forest Products. Several other small purchasers operate on the Forest on a part-time basis. Local sawmills depend completely on National Forest land for their sawlogs. The current maximum annual capacity is estimated to be:

Kaibab Industries	30 MMBF
Allied Forest Products	20 MMBF
Small Purchasers	5 MMBF
TOTAL	55 MMBF log scale

Currently, local sawmills are operating well below their maximum capacity.

6. Water

a. Water Quantity

Water from the Dixie National Forest represents one of the moxt valuable commodities in southwestern Utah. A significant portion of the water yield in this "water-poor" region of the state is produced in the high elevation areas of the Forest. However, the total water yield is low compared to other Forests in the region, amounting to an annual average of 481,000 acre-feet or about 3 inches per acre. Average water yields over 12 acre inches occur on only four percent of the Forest. The Dixie National Forest is near equally divided between the Colorado River Basin and the Great Basin in both area and water production. Approximately 224,000 acre-feet of water yield occurs in the Colorado River Basin.

b. Water Quality

The quality of waters on the Dixie National Forest is an important management concern. Past water quality monitoring has not indicated any significant degradation of water quality due to management activities. However, many stream originating on the Forest have naturally high sediment concentrations by the time they reach the Forest boundary. This is especially true for those streams flowing through areas with highly erosive soils and outcrops of certain sedimentary rock strata. Most of the sediment load is delivered to the channel during flash flood events. These conditions, combined with often highly erratic flow regimes, limit the aquatic community development of many stream reaches. Most water quality monitoring has occurred in the higher value waters where potential for significant degradation from management activities exits. Although these reaches generally meet State water quality standards, there is still concern that sediment producing activities may degrade them below their biological potentials. Road construction, timber harvest and grazing in riparian areas all tend to increase the sediment loading to streams and lakes. Mitigating measures are employed in resource development activities to ensure that this degradation does not reach unacceptable levels. Best management practices identified in this plan and in individual project plans are implemented in land management projects to control sedimentation to the extent feasible. These practices should allow all streams on the National Forest to meet the requirements of the State of Utah anti-degradation policy. An exception to the general rule of no significant human-caused water degradation exists at Panguitch Lake. This heavily used recreational resource is experiencing an accelerated eutrophication* rate which may ultimately cause series impairments of its fisheries and aesthetic values. A cooperative program is now underway to reduce the nutrient input.

The Forest Service will carefully manage the grazing and timber management programs in this drainage with an emphasis on preventing and controlling erosion. Specific measures will be developed on a case by case basis.

c. Special Conditions and Situations

Hazard areas with potential to degrade water quality on the Forest are associated with erosional concerns. These hazards are described in the Soils Section of this Chapter. An additional hazard occurs in the East Fork of the Sevier River. Unstable streambanks in this drainage have resulted in excessive sedimentation and loss of fisheries values. This stream is sensitive to factors that promote further destablization.

d. Flood Prone Areas

Intense thunderstorms occurring from July through September account for most of the summer precipitation in southern Utah. These summer storms can produce severe flash flooding in numerous dry washes, alluvial fans, and many perennial streams across the Forest. Few drainage bottoms on the Forest are immune to this type of flooding. Some of the larger streams which originate in the higher elevations of the Forest (e.g. Santa Clara River, Panguitch Creek, Mammoth creek, and the East Fork of the Sevier River) are subject to more extensive and prolonged flooding during the spring snow melt period. The primary flood hazard areas for this type of flooding are off-Forest in the communities and agricultural lands along the streams.

e. Water Storage and Transmission Facilities

Most of the water yield occurs during the spring and early summer months when the winter snowpack melts. Snow melt usually commences before the irrigation season and stream flows are much reduced by late summer. Consequently, those drainages with storage facilities are capable of providing a more constant and reliable supply of water. The water resources of the Forest have been extensively developed through the construction of numerous storage facilities, diversion structures, and ditches. There are approximately 70 reservoirs on the Forest. Most of the streams on the Forest either have diversions or impoundments above the Forest boundary. None of the exisiting facilities are perceived as detrimental to the management of the Forest for multiple use purposes. There are currently at least two water transmission facilities with associated erosion problems needing correction. Some of the impounding structures on the Forest currently have structural deficiencies requiring correction to meet Federal or State safety standards.

f. Water Uses - Consumptive

Most of the consumptive water use occurs off-Forest. The primary uses are for irrigation and culinary water supply in the alluvial valleys below the forested lands. Presently, the amount used for mining and industrial operations is minor. This situation may change in the future if the considerable energy reserves of southern Utah are developed. Eleven communities in southern Utah obtain at least part of their municipal culinary water supply from spring sources within the Forest boundary. Municipal supply watersheds have been designated for seven of these eleven community systems. They are Brian Head, Enterprise, Escalante, Panguitch, Parowan, St. George, and Teasdale. Management emphasis in these areas is for protection of water quality at culinary sources. Federal consumptive uses on the Forest are minor in quantity, but very important to the management of the Forest. Domestic use at administrative sites and in campgrounds, and livestock and wildlife watering are the primary consumptive uses.

g. Water Uses - Non-Consumptive

Instream flow represents an important non-consumptive use of water for National Forest. Instream flow needs include maintenance of fisheries, riparian ecosystems, recreational uses and stream channel integrity. These instream uses generally do not conflict with other uses of the water since most consumptive uses occurs off-Forest. However, in recent years there has been considerable interest in diverting small streams on the Forest for small-scale hydropower projects. Although non-consumptive, this use often presents serious conflicts with the management of other resources dependent upon the availability of surface waters. The Forest has initiated a program to identify instream flow needs for multiple use purposes. This program has been completed on approximately 30 percent of the streams on the Forest. When environmentally compatible with management objectives for an area, new permits to divert surplus water above identified instream flow needs may be issued. In all cases, the weighing of net public benefits of diversion of storage projects versus instream flow values plays an important role in the decision making process.

h. Riparian Areas

Riparian areas are recognized as unique, high value, hydrologic-biotic components of the Forest resource base. They are quite limited in a real extent on the Dixie National Forest. Riparian areas account for only one percent of the total Forest land base. Management activities within these areas must comply with Executive Order 11990 on Protection of Wetlands. The condition of some riparian areas is currently below potential due primarily to overuse by permitted livestock. This situation represents some degree of difficulty to rectify; however, over the long term, conditions of the riparian areas should progressively improve.

i. Demand

In southern Utah, the demand for water currently exceeds the existing supply. No slackening in future demand is foreseen. However, the mix of water uses will probably range with agriculture use becoming less with more water going to municipal, industrial, and minerals development uses. Any increase in water yield from the Forest, now or in the future, would undoubtedly be utilized by the surrounding or downstream water uses. However, the opportunities to increase water yield are limited. The primary means to improve water yield on the Forest include vegetative manipulation and cloud seeding. Vegetative manipulation opportunities include emphasis on clearcut harvest in aspen and patch/strip clearcut in spruce-fir and mixed conifer stands. These activities could be carried out on a maximum of 61,625 acres of timberland to augment water yield by approximately 4,000 acre-feet per year. This amounts to a 0.8 percent increase over current levels. A cooperative cloud-seeding program of the State of Utah and several local governments has been carried out in recent years in the mountains of southwest Utah. Preliminary results indicate a positive response to the cloud-seeding effort.

There is also very limited opportunity to meet significant demands for non-consumptive water uses such as hydroelectric power generation. Most of the economically justifiable reservoir sites have already been utilized. The remaining unimproved streams on the Forest are mostly quite small. It would be difficult to economically develop these streams for hydropower purposes without having serious impacts on other multiple use values.

7. Minerals and Energy

Minerals information relating to the current situation is discussed in detail in the AMS. Additional discussion is contained in the other chapters of the plan. Here we have included a very brief summary of the AMS and related information to describe the current condition of the Forest as it relates to minerals management. Minerals exploration and development activities are directly related to the interest generated by industry. Management of this resource is responsive to these public interests along with industry interest in coordination with various other public agencies and resources.

Satisfying demand for locatable minerals is the responsibility of the mining industry. Public domain land is available for mineral exploration and development under all applicable laws and regulations. Saleable minerals are the only type of mineral commodity for which the Forest Service can directly affect the supply by selling common variety mineral materials to individuals and private industry. The Forest Service also uses some common varieties for In-Service use.

a. Acres Available. Capable. Suitable

Availability. In accordance with the Federal Land Policy and Management Act of 1976 (FLPMA), the Forest Service must consider that all National Forest System lands are available for mineral exploration and development unless they are withdrawn from mineral entry and leasing.

Valid existing leases can still be developed in the three Dixie National Forest Wildernesses, but establishment of new leases is prohibited. The Utah Wilderness Act of 1984 provided for excluded portions of the Box-Death Hollow Wilderness to be leased, explored and developed for carbon dioxide known to underlie the area.

Existing withdrawals will be reviewed for continuation, modification or revocation prior to 1991, as directed by FLPMA. The review schedule may be found in the Appendix of the Forest Plan.

In summary, 1,781,779 acres are presently available for mineral leasing and 1,773,319 acres are available for mining entry. This is 95 percent and 94 percent of the Forest, respectively.

Capability. The determination of capability is largely a function of private sector interest and pursuit. The Forest is recognized as an attractive resource, in its entirety, for mineral and energy potential. However, the dynamics of economical and technological factors limit the development of predictions beyond blanket-level recognition of this resource potential.

Suitability. All lands not withdrawn from mineral entry and lyasins on the Forest are considered suitable for exploration and development of minerals.

Land management planning encourages or discourages minerals/energy activity by imposing restrictions on access to public lands. These restrictions are expressed through stipulations to mitigate potential adverse effects to other resources. These range from total withdrawal from leasing, through No Surface Occupancy lease stipulations, special lease restrictions, down to the most permissive case which contains standard stipulations.

Development of oil and gas and other minerals, may be further restricted by limitations placed on permits to drill and approved operating plans. Such restrictions can be imposed to protect wildlife, soil, steep slopes, water quality, cultural resources, visual resources and other environmental factor.

Another consideration relating to suitability of mining are the provisions of the Surface Mining Control and Reclamation Act (SMCRA). This Act provides for the application of Department of Interior criteria to determine suitability of certain National Forest coal lands for surface mining. The criteria were applied to 39,980 acres of coal lands on Dixie National Forest determined to have high or medium coal development potential or be under existing preference right lease applications (6). The results were ten acres classified as suitable/available for [illegible]al strip mining; and, the rest of the studied area can be considered available for coal leasing where surface operations and impacts are considered incident to an underground coal mine. Any leasing of potential coal lands outside of the study area will require subscription of the standard USDI criteria prior to leasing.

A special management situation was created under authority of 522 (c) and (d) of SMCRA by a Secretary of the Interior decision December 16, 1980. Effective that date, certain lands adjacent to Bryce Canyon National Park were declared unsuitable for all types of surface coal mining operations. This includes some land on the Dixie National Forest. The decision classifies 27,781 acres of National Forest land adjacent to the Park as being unsuitable for surface coal mining, including surface impacts incidental to underground mining which would be visible from the Park. Another 7,782 acres of National Forest land northwest of the Park were classified by the same decision as unsuitable only for mining by surface methods.

b. Current Management Direction and Situation

General Direction. The current management direction is to integrate the exploration and development of mineral and energy resources within the National Forest System with the use and protection of other resource values. Accordingly, mineral resources are treated as a resource on the Dixie National Forest. A basic difference, however, is that, contrary to other resources, mineral development is initiated and carried forth by private interest.

Minerals being considered a non-renewable resource, is treated with special consideration for rehabilitation of disturbed areas. Regional Direction concerning minerals can be found in the Appendix of the Forest Plan.

All minerals owned by the United States available for exploration and development are subject to disposal under one of these three categories -- locatables, leasables or salables.

For locatable minerals, any person proposing to conduct operations that might significantly disturb a surface resource must file a Notice of Intent with the District Ranger.

Permits, licenses, or leases for Leasable Minerals (i.e. oil, gas, coal, geothermal on all Federal lands and hardrock minerals on acquired lands) are issued by the Department of Interior. The Forest has opportunity to perform environmental analysis, recommend action, list stipulations, and propose requirements for rehabilitation. For all minerals on acquired lands, the Forest Service has authority to consent to or deny permits, licenses, and leases. For oil and gas proposals on public domain lands, the Forest Service has the authority to make recommendations to the USDI which has the ultimate responsibility for a decision on leasing.

Saleable Minerals are managed by the Forest Service. Permits are issued for use of these materials in accordance with Forest Service policy, and are kept on file at the Supervisor's Office.

Current Situation

Locatables. Approximately 5000 claims exist on the Forest. Assessment work is kept up on many of these, but, there is only minor exploration and development of locatable mineral resources at this time. Because of a depressed market there is little production. An operating plan to remove 20,000 tons per year was received for an open pit gypsum mine on the north side of Boulder Mountain, and mining began in 1984. A gold strip mine is being developed on private land within the Forest near New Harmony, with 22 lode and placer claims being located on adjacent National Forest lands. A road-use permit to cross National Forest lands provides access to the operation. The Forest Service, State of Utah, local communities and miners are cooperating to ensure orderly development occurs, and a comprehensive plan reflecting the concerns of these interests will be prepared should the operation expand to National Forest land. A Notice of Intent to Operate has been received for work on silver claims in the Leeds area. Throughout the Forest other claims have been located for uranium, limestone, iron, silicasand, building stone, and jasper; however, there has been no recent activity outside of annual assessment work.

Leasables. The Dixie National Forest has been rated for potential development of oil and gas, coal, and geothermal resources. Data used to determine geologic potential was furnished by industry, the Department of the Interior, and the Forest Service. The potential for oil and gas ranges from low on the west side of the Pine Valley District to high on all of the Escalante and Teasdale Districts.

About 800 oil and gas leases exist on 75 percent of the Forest. Annually, 100 to 200 new applications for oil and gas leases are processed, between 10 to 30 geophysical prospecting permits are issued, and one or two wildcat exploration wells are drilled. Currently, the rate of geophysical prospecting is low, but drilling wildcat wells and leasing has been increasing. Increased use of improved seismograph techniques and equipment throughout the Forest during recent years has yielded better quality data than was obtained in the past. This improved data stimulated extensive drilling in southern Utah along the Overthrust (overthrust belt passes through the Forest) in the Hingeline, in the Kaiparowits Region, and along key faults and anticlines. Many of the dry wells drilled showed oil present, but not in economically attractive quantities or quality. Exploration recently was conducted at a high rate between Antimony and the Tropic Reservoir area for oil and gas.

The Forest has a producing oil field at Upper Valley. This field, developed in 1964, currently has 23 oil wells which produce in excess of 1300 barrels of oil per day. About 21 million barrels were produced through the end of 1985. This field also have nine injection wells and one temporary shut-in well. Two more oils wells will be drilled in the oil field in 1985. The field has been stimulated, by using recovery-enhancing polymers. The oil field operator worked cooperatively with the BLM and USFS in late 1983 and early 1984 to prepare a comprehensive surface protection and reclamation plan for Upper Valley Oil Field. The BLM estimates the field has about 20 years of life left.

Through the cooperation of the oil company, an abandoned oil well drilling site on the Teasdale Ranger District was converted to a developed trailhead for recreationists in 1984.

Carbou dioxide (CO_2) has been discovered on National Forest System land in several locations. A well drilled in the Sand Creek drainage, on the Escalante Anticline in 1983, yielded 124 million cubic feet of CO_2 gas per day at 100 lbs. per square inch. The operator/lessee estimated the total CO_2 resource in the field to be 1.3 trillion cubic feet, possibly the largest CO_2 field on the continent. In 1984, one additional well was drilled in Sand Creek, and it too, yielded CO_2. In late 1984, a third well was drilled for CO_2 on Antone Ridge between the Box-Death Hollow drainages. The third well said to be needed to confirm the volume of CO_2 in the field, and to determine whether the CO_2 field is economically feasible for development. If the project is feasible, then the concerned leasees will probably unitize and submit a comprehensive plan for full development of the CO_2 field. A market for CO_2 may exist in either CO_2 enhanced oil recovery in depleting oil wells, and/or in coal-liquified CO_2 slurry pipelines. There is a possibility CO_2 from the Escalante Anticline area could be used for enhanced oil recovery, in other areas of the country and in the transportation of coal from Kaiparowits and Alton coal fields.

Coal resources extend onto the Forest in four fields. Much of the coal is covered by more than 3000 feet of overburden, making it unavailable. In addition, much of it is of a quantity or quality that makes it uneconomical for industrial development. Commercial opportunities on the Forest exist in the Alton and Kaiparowits fields, where the quality of the coal is generally very good. Interest in coal development has been restricted by lack of market and isolation of the resource. ON the Forest there is one existing 40-acre coal lease and 3 old coal mines, but no mining has taken place since the 1960's. The Forest has six preference right coal lease applications (PRLAs) pending on the Escalante District. These involve approximately 20,000 acres of National Forest land. During 1983, a study was completed which employed the Department of Interior's coal unsuitability criteria for the hgh and medium potential coal lands (technical data was furnished by USDI) to determine which National Forest lands can be made available for surface coal mining. The results of that study can be found in the Appendix of this Plan. Upon completion of the Coal Unsuitability Study, two environmental assessments were prepared by the Forest for the six preference right coal lease applications. There were in the draft stages when the BLM stopped all work on an EIS being prepared for all Preference Right coal lease - application areas in Utah. The EIS preparation was suspended because the 1984 Appropriations Act prohibits leasing activity in a Wilderness Study Area and one of the areas involved was a WSA. The PRLAs on National Forest lands are not encumbered by WSA status.

There have been a variety of proposals to develop the two billion ton Alton field and 15 billion ton Kaiparowits field. These proposals have stimulated considerable controversy due to their close proximity to Bryce Canyon National Park.

Development of coal is in a dormant stage now. However, large companies (primarily) have leased much of the commercially developable coal on Federal, State and private lands. Since removing large volumes by truck from the Kaiparowits-Alton fields is impractical, the coal when mined will have to be transported by rail or pipeline. When development occurs, it is unlikely the coal will be utilized in the immediate area of the coal fields because of the extremely sensitive scenic and air quality values.

In the event USDI conducts a regional competitive lease coal sale in the area, it is possible industry may express interest in bidding on coal resources which were not included in the Forest's Coal Unsuitability Study. If this occurs, the USDI criteria will need to be applied to the unstudied area before the coal can be leased.

The potential for geothermal resources exist on the west side of the Forest. Thirty-six applications for lease were received on the Cedar City District, and eight on the Pine Valley District. All were withdrawn just prior to completion of Forest Service environmental assessments. A competitive-bid lease area (Known Geothermal Resource Area) exists at Navajo Lake, because applicants inadvertently overlapped to create a competitive bid situation. Geothermal interest on the Forest has dropped because of the current economic condition. Exploration and development continue in the Escalante Desert north of the Pine Valley District, where the potential for discovery is greater and where there are existing surface expressions of a geothermal resource. A moderate temperature geothermal - heated greenhouse industry has developed at Newcastle, adjacent to the Pine Valley Ranger District. The Forest is the recharge area for desert warm water aquifers.

c. Common Variety Mineral Materials

Common variety mineral materials are made available throughout the Forest by commercial sales and free use. Many common varieties are used for Forest Service projects. The west side of the forest has several good deposits of cinders which have been utilized extensively. Sand and gravel have been developed in numerous areas on all Ranger Districts.

Some of the pits are under special use permit and the use is exclusive to the permittee. Other pits are of a community type. Depending on the case, charge type or free-type permits are issued upon request. An operating plan is issued with each permit. The Pine Valley and Cedar City Districts have prepared comprehensive management plans for each community pit. In 1984 the Powell District completed a comprehensive management plan for common varieties covering the entire District. Surface protection and reclamation practices are on-going at all areas.

A seven-year history (1977-1983) of common variety mineral materials disposal on the Forest shows the average amount of common varieties (sand, gravel, cinders, and rock) disposed to be:

TABLE II-29

Sold	4,698 tons/year
Given Away Free	60,241 tons/year
Used by the Forest Service	87,233 tons/year
TOTAL =	152,165 tons/year

(The estimated value at the present on-site rate charged by the Forest Service, 152,165 X $0.30/ton = $45,650/year.)

d. Expected Future Condition

Future technology, change in economic conditions, new discoveries, and changing needs will determine to a large extent where, when, and which minerals are developed. As these things occur, special stipulations and operating procedures ae included in federal licenses, permits, leases and operating plans to coordinate with other resources as required. These stipulations and procedures may exclude surface occupancy, require special provisions, and/or may result in increased operating costs.

The policy and procedures set forth in the Interagency Agreement (IA) effective June 19, 1984, between the BLM and Forest Service covering mineral leasing, will be followed whenever a proposal is received by the Dixie National Forest. This IA will be followed in respect to the processing of authorizations, such as licenses, permits, and leases, that grant rights to federally owned minerals in the National Forest System and in adjoining lands with Federal minerals (split estate lands). A copy of the IA may be found in the Appendix to this plan.

8. Human and Community Development

The Forest is currently operating six major manpower programs which provide employment, skill training, experience, and education for a wide range of age groups interested in natural resource management. Manpower programs provide a valuable service to the Forest and at the same time fulfill a U.S. Department of Agriculture commitment to serve the unemployed, underemployed, minorities, and economically disadvantaged youth and elderly through related forestry activities. The following programs exist on the Forest:

-Youth Conservation Corp (YCC). Funding changes have necessitated a cut back in this program. Over the years it has played an active and important role.
-Senior Community Service Employment Program (Older American). The Older American Program, being very active on the Forest, employs part-time elderly persons whose incomes are within poverty level standards.
-Volunteers. Because individuals participate in this program without compensation numbers of volunteers actively participating at any one time varies substantially. Campground host duties are popular volunteer projects on the Forest.
-Comprehensive Employment and Training Act (CETA). This program has been reduced. It is doubtful the Forest will be able to host the enrollees of the various titles of the Act.

-College Work Study (Coop. Ed.). This cooperative program is one which the Forest has supported within the limits of its funding capacity.
-Student Volunteer Program - With Southern Utah State College nearby, the Forest has an excellent opportunity to use students, especially in the Business Management area.

All participants benefit from the manpower programs. The enrollee receives income and training or employment opportunities that are not otherwise available.

b. Demand Trends

The outlook for manpower and youth training programs on the Forest is not encouraging. Many of the programs and Federally funded, with monies coming from other Federal agencies.

E. SUPPORT ELEMENTS

1. Lands

Landownership and Land Uses

Ownership. The Dixie National Forest has a gross acreage of 1,967,187 with 1,883,734 acres of National Forest administered lands and 83,453 acres in other ownership. The major portion of the Forest was reserved from public domain when the Forest was established. Land status factors affecting acreage are 31,754 acres of exchange, 68 acres of donation, 10,724 acres transferred from other agencies, and 1,191 acres reserved and acquired for riparian purposes.

Classification. Special classifications of land often restrict resource uses and may effect objectives for land acquisition or disposal. The following tables indicate these lands which are withdrawn, classified or designated for a special purpose:

Wilderness With Subsequent Withdrawal from Mineral Entry

Pine Valley	50,000 acres
Ashdown Gorge	7,000 acres
Box-Death Hollow	26,000 acres
	83,000 acres

Withdrawn from Mineral Entry

Administrative Sites	3,109 acres
Recreation Sites	5,351 acres
	8,460 acres

The Federal Land Policy and Management Act directed that all withdrawals be reviewed for continuation or revocation prior to 1992.

F.E.R.C. (F.P.C.) Withdrawals	500+ acres

These lands are not being used for the purpose for which they were withdrawn, no action has been taken on them. The Forest will recommend removal from the records by revocation of the withdrawals.

Classified, Designated or Set-Aside for Special Purpose

Coal and/or Mineral Reserve Areas	285,550 acres

Some of these special classifications apply to the same acreage, therefore acreage figures are duplicated in some instances. effects of these classifications on land adjustment activities cannot be generalized as each allows and/or restricts specific activities.

Research Natural Areas and Other Classifications. No research natural areas have been designated; however, three potential areas have been identified. These are: The timbered Cinder Cone (640 acres), Table Cliff (1,235 acres) and Red Canyon (460 acres). All streams and rivers that meet the criteria for wild and scenic rivers as discussed in (PL 90-542) are located off the Forest. They will not be evaluated in the Forest Plan. The Forest was examined for potential National Natural Landmarks and no suitable candidates were found.

Land Adjustments. The land adjustment activities on the forest consist of purchase, exchange and donation. A lack of funds for purchase limits opportunities to block Federal ownership in those areas suitable for National Forest management. The only funding for purchase on the Forest is the Land and Water Conservation Fund Act of 1964. While the Forest has had approved tracts, there has never been funds for purchase made available to the Forest. The exchange program has been the land adjustment vehicle for the Forest. While the exchange program has been in effect for years, an active program was initiated in 1975. The Asset Management Program limited the activities for a couple of years, but it is anticipated that an active program can be reestablished. The exchange program can be characterized as trading on a value basis certain lands with limited benefits to the National Forest (selected lands) for private lands (offered lands) that would better meet the needs and objectives of the Forest. In recent times this program has resulted in a small net loss in National Forest acreage as lower valued Forest lands were used in exchange for higher valued private lands, however, such results are strictly a result of the lands used. The donations received originate from landowner initiative rather than a program, and they have typically been of small acreage and low value.

Since land adjustment activities are normally conducted only with willing parties there is an inherent degree of uncertainty when forecasting changes and accomplishments. Improvements in landownership pattern are expected in the future as the land adjustment activities are carried out. A pattern of mixed ownership will prevail on the Forest with the land adjustment activities following a variety of resource needs and objectives.

Interchange is a land adjustment activity that does not involve the private sector. Interchanges involves the exchange of Federal lands between one or more Federal agencies. The objectives of such activities are similar to those outlined in the land adjustment discussion. The Forest, in the interest of improved management, has explored this option in the past and will continue to look at opportunities to improve management by interchange activities on a local basis.

Rights-of-way activities on the Forest involve road and trail rights-of-way usually in the form of easements. While the Forest has access in many locations due either to dedicated public or acquired rights, such rights do not begin to cover all of the rights needed. There are rights-of-way needed for existing roads and trails not covered by deeded rights. This last group of needed rights-of-way consist of prescriptive rights developed by the public through past prescriptive use for roads and/or trails. These prescriptive rights perfected by the public need to be carried forward to formal rights when they will serve the needs of the public and the National Forest.

Again the right-of-way activities are normally conducted only with willing parties, therefore, there is an inherent degree of uncertainty when forecasting changes and accomplishments. The rights-of-way activities are expected to improve the public access to the Forest and assist in the utilization of the resources.

The amount of private land boundaries adjacent to and inside the Forest creates a high priority for landline location and boundary marking. This program has a significant amount of work backlogged from earlier times when a limited program was in effect. Each mile of line established usually produces some type and degree to trespass. With the more active landline program in recent times, a sizeable backlog of cases has developed and grows with the landline program. These cases generated by the landline program generally call for action under one of the following classifications trespass, title claims, or the new Small Tracts Act of 1983.

The nonrecreation special use program continues to grow at a fairly constant rate. Every effort is made to respond to applications for new permits in the shortest time possible. The program involves a considerable investment in time both in permit processing and field inspects pre and post permit. The requirement of annual fee determination and billing also represents a sizeable investment in time. A listing of permits as of fiscal 1984 and fees collected from them are shown in Table II-30.

TABLE II-30
PERMITS AS OF FY 1984 AND FEES COLLECTED

Use	Annual Fee	Miles R/W Length	Acres Permitted Area	Number of Cases Charge	Free	Other Agency	Total
Agriculture	69.50	1.7	611.7	8	2	0	10
Community	0	0	14.0	0	6	0	6
Industrial	2,539.40	0	48.6	81	8	0	89
Public Information	25.00	0	.2	1	1	0	2
Research Study and Training	50.00	0	562.0	2	1	0	3
Transportation	419.60	80.5	492.2	6	25	1	32
Utilities and Communication	17,531.99	248.8	1,508.9	39	29	6	74
Water	2,513.00	133.3	3,149.0	85	30	2	117
Total	$40,688.49	464.3	6,773.5	291	105	9	405

2. Soils

The Dixie National Forest is located primarily in the Colorado Plateau Province where topography consists of broad plateaus bounded by receding escarpments and dissected by vast canyons. The extreme southwest portion of the Forest occurs in the Basin and Range Province noted for its internal drainage characteristics and steep mountain ranges rising abruptly out of the valleys.

The complex geology of the area accounts for an intricate variety of soil types. The interbedded sedimentary rocks, including limestone, sandstone, shale, conglomerate and gypsum have been modified by faulting, folding and uplifting. The Pine Valley mountain laccolith consists of quartz monzonite porphyry. Extrusive igneous rocks consisting of latites, dacites, ignimbrites, breccia and tuffs, andesite and basalt occur over much of the area. Glacial morain and outwash are associated with the highest elevations. Landslides and landflows have altered the topography, especially below the plateau rims. Some geologic formations are especially susceptible to land movements.

Vegetation varies from desert shrub types at the lower elevations to alpine meadows at the higher elevations. Because of the combined effects of differences in geology, geomorphology, climate, vegetation, and aspect, a very complex pattern of soils has developed.

A number of special soil limitations have been identified on the Forest that affect management practices and resource uses. These include areas of low soil productivity, high erosion hazard, and geologic contact zones subject to slumping. Methods of timber harvest, road location and design must be altered to take into account those kinds of hazards.

a. Watershed Condition

Watershed conditions have improved dramatically across the Forest since the 1940's. Prior to this time, overgrazing had seriously depleted ground cover and increased soil erosion. Large reductions in livestock numbers and implementation of modern range management techniques have allowed most of the upland areas to recover to good condition. There are, however, numerous areas on the Forest where structural measures are needed to combat accelerated erosion. These areas are usually characterized by advancing gully networks or unstable stream channel conditions. A recent watershed improvement needs inventory catalogued 725 acres of high priority watershed restoration projects needing work. There are an additional 1515 acres of smaller projects that require watershed restoration. In addition, there are 110,000 acres of poor condition range which has not yet been brought back to satisfactory condition This acreage occurs on several different allotments. Because these areas are scattered and of small size, they are not generally amenable to vegetative manipulation or land treatment. The majority will be improved naturally through improved grazing management.

b. Soil Erosion

Several areas of extremely high soil erosion rates exist on the Forest, such as the pink cliffs (Wastach/Cedar Breaks/Claron Formations) on the plateau sideslopes and blue shales above the Paria River and Henrieville Creek. Erosion rates from these unvegetated escarpments are difficult or impossible to significantly reduce. Other areas exist with high soil erosion hazard, but which are vegetated and can be managed for multiple resource outputs (e.g., areas with soils derived from the Claron and Carmel formation). On these areas greater restrictions are called for in timber harvest, grazing intensity, road construction, vegetation manipulation and other activities which might decrease protective ground cover.

c. Soil Productivity

Soil productivity varies considerably across the Forest with differences in elevation, precipitation, temperature, geology, vegetative cover, aspect, soil depth, texture, rock fragment content, slope, and drainage.

Generally, the lower elevation areas with pinyon-juniper vegetative cover types on steep slopes have shallow droughty soils with low productivity potential.

Sagebrush valleys and gently sloping areas of pinyon-juniper have moderately high productivity potentials. Many of these areas have been chained and seeded to increase the forage production for livestock and wildlife.

Plateau lands with ponderosa pine and mixed conifer vegetative cover types have moderately deep and deep soils with moderate to high productivity potential. Generally soils derived from basalt or andesite parent materials are the most productive timber producing soils.

Shallow droughty soils on steep slopes with south aspects derived from livestone parent materials typically have very low productivity potential for producing commercial timber. Soil erosion rates are typically high and regeneration success is poor.

High elevation plateau lands with spruce fir vegetation typically have moderately deep soils with low to moderate productivity due primarily to short growing seasons and cold temperatures. Regeneration success has generally been poor.

The extreme elevation and climate of 11,000 foot Boulder Mountain has produced soils of low productivity potential for both timber and rangeland.

d. Geologic Hazards

Geologic hazard areas identified on the Forest include potentially active fault zones and slump zones. Varying degrees of resource management implications are associated with each of these hazards.

Seismic hazard zones on the Forest have been identified and mapped. These zones extend approximately 1.25 miles from faults active in Recent or Quaternary times. These zones represent areas where there is a potential of rupture or shaking damage from earthquakes associated with fault slippage. Potential seismic hazards will be considered when designing buildings, dams, transmission facilities and other structures in these zones.

Slump zones commonly occur in broad bands along plateau slide slopes on the eastern portion of the Forest. The Wasatch-Kaiparowits contact zone is an especially important area of soil mass movement. Slump zones present special problems for those management activities involving road construction or other earth moving activities. Road cuts and other excavations frequently will initiate large scale soil mass movements which are difficult or impossible to control. Careful attention must be given to proper road location and design in these areas to minimize the incidence of slumping and associated resource costs.

e. Soil Resource Inventory

Detailed soil information is needed to provide information to resource managers to mitigate soil and geologic hazards. At present, an uncorrelated Land Systems Inventory has been completed for the entire Forest, however, the mapping units are quite broad, therefore, the data is often inadequate for specific project planning.

Detailed soil information has been collected on approximately 800,000 acres of the Forest (Order 2 and 3 soil survey). Currently, approximately 50,000 acres are inventoried annually. Current direction is to continue the soil resource inventory at an Order 3 level on the productive forest and rangeland, and an Order 4 level on lower producing lands.

Approximately 46,200 acres of timber land were removed from the timber base in this planning period, due to the lack of adequate soil and geologic information. The Forest will determine whether or not irreversible resource damage would occur if logging were allowed on these acres. It is important to collect this inventory information prior to the next Forest Planning update, in order to accurately determine the resource potential of these areas.

3. Facilities

The Dixie National Forest has numerous facilities including roads, bridges, administrative sites, buildings, dams and water systems. They require considerable time and money for operation and maintenance. There has been large investment in these facilities to enable the development, protection, and use of forest resources.

The Forest's Transportation System, including roads, bridges, and major culverts, provide access for forest users. The system serves this function, but many miles of the Forest's road and trail systems are below the standard actually needed to support land management. All bridges and major culverts are usable, but six bridges do not meet Utah State Standards.

Most administrative sites and buildings on this Forest are old. An aggressive program of maintenance and reconstruction is required. However, under the provisions of the National Historic Preservation Act of 1966 (36 CFR 800.3), the effects of any program of maintenance and reconstruction on the existing administrative facilities must be determined for appropriate properties. Appropriate properties are those that are at least 50 years of age and/or represent a Civilian Conservation Corps construction project from the 1930's. As with any cultural resource, the property will be evaluated for eligibility to the National Register of Historic Places. Adverse effects to significant properties will be mitigated by data recovery plans.

The Forest has 28 water systems, used by both the public and Forest employees. Many of these water systems need major maintenance or reconstruction.

The Forest has responsibility for inspection of both special use and Forest-owned dams, canals and pipelines.

The trail system is described in the recreation section.

a. Transportation (Roads)

The Forest has over 2,100 miles of Forest Development Roads on inventory. This includes 527 miles of arterial roads, 615 miles of collector roads, and 984 miles of local or terminal roads. The Forest is in the process of an on-the-ground review of the roads system. There are many roads that exist and are utilized as a transportation network that are not yet inventoried.

The Forest does maintenance work on approximately 570 miles of Forest road each year. This is about one-fifth of the total road system.

The arterial system does not meet the standards necessary to support existing uses. The arterial roads were generally constructed as single lane with turnouts. Maintenance over the years has widened the travelway to a lane and a half width in most instances.

The collector road system is being increased each year by approximately four miles and an additional two miles is being reconstructed. The majority of this work is associated with the timber program. The collector system is being designed to accommodate all weather continuous use, with a single lane and turnout standard. It is anticipated that the collector system will be in place by the end of the present ten year timber harvest program. The local and terminal system is being increased yearly at the rate of approximately 20 miles. The majority of the increase is the result of the timber sale program. The normal timber sale activity creates a road network density of approximately three to four miles of road per 640 acres. These roads will be used for future activities and will remain part of the Forest Development System. Roads not needed are closed for resource protection and/or improvement. This also eliminates the need for unnecessary expenditures for road maintenance.

The Forest has 46 bridges and 9 major culverts. Forty of the bridges meet Utah State Standards. The remaining six have been signed for loading capacity and may need to be repaired or replaced.

b. Administrative Sites, Buildings, and Support Facilities

There are 66 buildings used as offices, residences, and warehouses. Most of these buildings are over forty years old. The buildings are all included under a maintenance schedule. The Forest intends to place needed new buildings on the Regional Priority Construction LIst. Smaller facilities are constructed as feasible with available funds.

The Forest's 28 water systems serve administrative sites, recreational sites, and special use areas. Many of these water systems do not comply with Utah State Standards. The water systems that do not comply with Utah State Standards are being rehabilitated as funds permit.

Thirty-nine dams on the Forest are operated under special use permit. The Forest Service inspects these dams and requires permittees to perform necessary maintenance. The Forest owns and maintains four dams.

c. Highway Corridors

The following are the federal and state highways that provide access to the Forest:

-Interstate 15 - St. George through Cedar City
-Utah State Highway 18 - St. George to Enterprise
-U.S. Highway 89 - from Orderville through Panguitch to Richfield
-Utah State Highway 143 - from Parowan through Cedar Breaks to Utah Highway 14
-Utah State Highway 56 - from Cedar City west to New Castle.
-Utah State Highway 14 - from Cedar City east to U.S. Highway 89
-Utah State Highway 20 - from I-15 east to Utah State Highway 89
-Utah State Highway 12 - from U.S. Highway 89 to Escalante.
-Forest Highway 41 - from Escalante to Teasdale
-Forest Highway 17 - from Widtsoe east to Utah State Highway 12
-Cedar Breaks-Panguitch Lake Road - FS No. 30040 - this road goes from Cedar Breaks to Panguitch

d. Utility Corridors

The following are rights-of-way on the Dixie National Forest meeting standards for corridor designation:

-The Diamond Mountain portion of Utah Power and Light Company's 138 kV transmission line from Cedar City West Substation to St. George, Utah, via Central, Utah (Pine Valley Ranger District). a/

-Garkane Power Association's 69kV transmission line, from Henrieville substation to Escalante substation. a/

-Intermountain Power Project's 500 kV dc transmission line, from New Castle to Veyo, Utah (Pine Valley Ranger District). a/

-Utah Power and LIght Company's 230 kV transmission line in South Johns Valley and Cedar Fork (Escalante Ranger District). a/

-Utah State Road 18 from Enterprise to Central Utah (Pine Valley Ranger District. a/ b/

-Utah State Road 12, from the junction of Utah State Road 63 to Escalante, Utah (Escalante Ranger District). a/ b/

a/ These transmission lines and road rights-of-way are part of and within the New Castle-Veyo and/or Johns Valley/Upper Valley Main Canyon planning window areas.

b/ State road routes are considered as portion of potential corridors or window for energy transportation facilities. These routes are not evaluated for the purpose of potential expansion or upgrading of Forest Highway system.

e. Window Areas

Six areas on National Forest land have been evaluated and designated as windows (these planning "window areas" are critical segments of terrain through which energy transportation and utility rights-of-way could pass in traversing the Forest).

These planning window areas are:

- -New Castle, Utah to Veyo, Utah (Pine Valley Ranger District)
- -Three Creeks (Cedar City Ranger District: two separate signments).
- -Hillsdale Canyon-Ahlstrom Hollow (Powell Ranger District)
- -Johns Valley and Upper Valley (Powell and Escalante Ranger Districts)
- -Main Canyon to Widtsoe, Utah (Escalante Ranger District)
- -Escalante, Utah to Antimony, Utah via Davis Flat Junction (Escalante Ranger District)

f. Exclusion Areas

These areas on the National Forest have been identified as Exclusion areas. (These areas have statutory prohibition to rights-of-way for linear facilities on corridor/window designations.

These exclusions areas are:

- -Pine Valley Mountain Wilderness (Pine Valley Ranger District)
- -Ashdown Gorge Wilderness (Cedar City Ranger District)
- -Box-Death Hollow Wilderness (Escalante Ranger District)

g. Avoidance Areas

Areas have been identified on the National Forest where environmental, statutory and/or technological effects form energy transportation and utilities would be difficult or impossible to mitigate. These areas include all Dixie National Forest lands not identified in the discussion above.

4. PROTECTION

a. Fire and Fuels Management

From 1971 through 1979, the Forest averages 81 fires per year, approximately 20% of which were man-caused. The total area burned during this period was 8,917 acres.

In the June 5, 1984, Federal Register the Forest Service invited public comments on a proposed policy change to permit prescribed fires ignited by trained professionals to be used in wilderness areas. The purpose is to reduce the risk from wildfire and its consequences and to permit lightning-caused fire to more nearly play their natural ecological roles within wilderness. There are no approved Fire Management Areas on the Forest.

The Forest has completed a Level II Fire Analysis to document its most cost efficient fire management program. It considered the kind, number, location, timing, cost, and efficiency of fire management forces and activities at alternative budget levels under current management direction. The Analysis includes forces and resources available through Inter-Agency Cooperative Agreements, as well as resources available within the Forest Service through other Forests and Regions.

The hazard of wildfire on the Forest is increased significantly by the presence of summer homes, residence areas, and real estate developments on private land adjacent to the Forest, refuse dumps located near the Forest, seismic surveys involving the use of explosives, the public use of the Forest for recreation, and activities associated with logging and thinning.

At special risk from these hazards are large areas of thinning existent on the Forest; recreation and aesthetic values, including values associated with National Parks and Monuments adjacent to the Forest; Forest capital investments, and the large number of summer homes and residences scattered on private holdings throughout the Forest.

b. Forest and Rangeland Pest Management

The principal insects and diseases affecting the the Dixie National Forest timber stands are mountain pine beetle, Douglas-fir beetle, Engelmann spruce beetle, western spruce budworm, dwarf mistletoe, and root rots. Labops, grasshoppers, and Mormon crickets are the principal insects affecting forage on the Forest. Pocket gophers and the porcupine are animals of significance affecting the timber resource.

Mountain pine beetle has caused extensive mortality in overmature, overstocked stands of ponderosa pine for several decades. Epidemic levels of the beetle, recorded since the 1950's have continued to cycle throughout the Forest, removing many of the larger diameter trees and up to 70 percent of the volume in infested stands. The most recent infestations began in the early 1970's, but accelerated in 1976 through the present. Infestations are continuing in the Cowpuncher and Grimes Creek areas of the Escalante Ranger District and are intensifying on other areas of the Escalante and Teasdale Districts. Mountain pine beetle will continue to have a significant impact in the future on overstocked and unmanaged stands of ponderosa pine.

A serious epidemic of Engelmann spruce beetle occurred on Boulder Top and part of the Aquarius Plateau in the 1920's. Another outbreak of Engelmann spruce beetle in 1948 caused severe mortality through 1963 despite control efforts. The most recent outbreak started in 1968 and was controlled in 1969 after logging 3 MMBF of infested timber. Spruce beetle populations have been at endemic levels since 1970.

Douglas-fir beetle has historically caused mortality in mature and overmature stands of Douglas-fir. The most significant outbreak occurred from 1954 to 1963, though small localized infestations have occurred since 1963. At present, beetle populations are at endemic levels.

Thousands of acres of spruce-fir have extensive mortality caused by a bark beetle/root rot complex. Significant mortality began in 1976 and has since accelerated. The causal agents appear to be a combination of root rots predisposing trees to the western balsam bark beetle. This mortality is expected to continue with progressive expansion of present root rot mortality centers. A root rot complex of 1300 acres in the Peterson Grove on the Aquarius Plateau is presently being studied. Root rots caused by Fomes annosus and Armillaria mellea cause mortality and growth loss in localized centers, and pose a threat to regeneration on infested sites. Damage from root rots can be expected to increase steadily unless control measures are undertaken.

Western spruce budworm has caused several thousand acres of moderate to severe defoliation in the Red Creek area on the Cedar City Ranger District. Defoliation of Douglas-fir, white fir, and subalpine fir is expected to intensify over the next 4 to 5 years. About 15,000 acres were affected in 1983, expanding to 45,000 acres in 1984.

Dwarf mistletoe causes significant losses to infected stands, retarding growth and causing significant volume loss and eventual tree mortality. A survey of the Dixie National Forest in 1978 indicated that most of the Douglas-fir and about 40 percent of the ponderosa pine were infected.

According to the 1980 Timber Inventory, insect related mortality accounts for a 6 percent MMBF timber loss per year and disease related mortality accounts for a 12.6 MMBF loss per year.

Black grass bugs (Labops hesperius) are found throughout the created wheatgrass reseedings on the Forest. These insects lower forage productions significantly if the grass stand is a monoculture. Control of this insect using pesticides has not proven to have any long term effects on the Forest.

Infestations of grasshoppers and Mormon crickets periodically appear on various ranges of the Forest. Should sizeable areas be seriously affected by these insects, pesticide control measures are available.

Management direction for the Forest includes an Integrated Pest Management (IPM) program in which all aspects of a pest-host system are studied and weighed to provide the resource manager with information for decision making.

Current pest management practices include stand hazard rating to identify high-risk stands, monitoring insect and disease levels, and control measures such as harvest and thinning to reduce the potential for outbreaks. High value trees in developed and administrative sites may also be treated with a protective spray when bark beetle population are epidemic in the area.

A principal current method for minimizing the impacts of forest pests is the conversion of unmanaged timber stands to manage stands in the shortest time feasible. This would involve harvesting many of the old growth timber stands which are sustaining the greatest impact from insects and disease.

Economics and timber demand will play a large part in the Forest's ability to manage these high risk stands. A good proportion of the remaining old growth is located on slopes over 40 percent, and require the use of cable or aerial systems for harvest. Stumpage value and locally developed technology are important factors in the feasibility of harvesting high risk stands on these areas.

c. Air Quality

The National Clean Air Act requires tha airsheds be designated under one of three classes:

Class I - Only minor quality deterioration.
Class II - Permitted moderate deterioration.
Class III- Permitted deterioration up to National Ambient Air Quality Standards.

The entire Dixie National Forest is designated Class II. There are no non-attainment areas because of the lack of pollution sources. Class I area sheds at Zion, Bryce, and Capital Reef National Parks provide an umbrella of air quality protection over most portions of the Dixie National Forest.

Forest activities contribute very little to deterioration of air quality except for uncontrolled wildfire. This source is recognized by the State as unavoidable and occurs only occasionally.

The Forest burns by prescription about 200 acres per year and may expand the program in the future. By using the clearing index*, especially on burns below 6,500 feet, prescribed burning will not contribute additional pollutants to the non-attainment areas. Other sources of pollutants in the Forest are dust from unpaved roads and exhaust from motor vehicles.

Based on anticipated resource uses such as timber harvest levels, no change in air quality conditions over the Forest is predicted.

No serious problems of off-Forest pollution source affecting the Forest are anticipated because of the close proximity of Class I National Park areas.

d. Law Enforcement

The Forest Service has certain statutory responsibility for law enforcement on National Forest Lands. The Dixie National Forest, in cooperation with State, Local, and other Federal law enforcement agencies, maintains a law enforcement program that strives to ensure compliance with laws and regulations, protection of the public and their property, protection of Forest Service employees, and protection of Forest Service property and resources.

The following activities are existing and potential law enforcement problems on the Dixie National Forest.

- Vandalism
- Fee deposit break-ins
- Theft of timber and Christmas trees
- Drug trafficking and growing of cannabis
- Misuse of motorized vehicles
- Threats, intimidation, assaults, and battery against Forest officers
- Man-caused wildfires

The Forest's approach to meeting its responsibilities is to:

-Cooperate to the fullest extent possible with State and local agencies through the use of cooperative law enforcement agreements.
-Support a Shared Services Special Agent located in Salt Lake City.
-Train selected forest Officers to investigate and initiate the limited law enforcement actions.
-Designate and train at least one Level IV Law Enforcement Position on the Forest.

The Forest has five cooperative law enforcement agreements with State and local Law Enforcement agencies, at an annual cost of approximately $13,000. National statistics and local trends indicate an increase in the Public's use of National Forest land, and a resultant increase in law enforcement activities. Therefore, there is an increasing need for law enforcement program emphasis to meet the Forest's statutory responsibility.

F. NEED TO ESTABLISH OR CHANGE MANAGEMENT DIRECTION

The Forest planning process included a determination of the need to change management direction. This was accomplished by assessing the current situation, determining production potentials, and reviewing the public issues and management concerns of the Forest. The following are the more significant changes in management direction which were identified:

Desired Condition: Provide developed recreation sites necessary to accommodate future recreation demand. Developed site capacity is currently exceeded on peak days. For the Forest as a whole, recreation use at developed sites will exceed capacity during the decade 1991-2000.

Need for Change: "Harden" existing sites, and increase the capacity by expanding existing sites and developing new sites.

Desired Condition: Provide sufficient dispersed recreation areas and facilities to accommodate dispersed recreation users.

Need for Change: Dispersed recreation opportunities should provide increased cross country ski and snowmobile trails, trailheads, sanitation facilities, and informational signing.

Desired Condition: Focus wildlife and fish habitat improvement efforts to those habitats most in need of improvement.

Need for Change: Use data in the wildlife and fish section of the plan to develop Forest-wide habitat improvement priorities. Gather additional data on riparian areas and streams for use in identifying and prioritizing habitat improvement opportunities.

Desired Condition: Achieve a timber harvesting program on steep slopes that will allow for the benefits of managed stands to be applied to more acres on the Forest.

Need for Change: Develop cost efficient opportunities for harvesting on lands too steep for tractor logging.

Desired Condition: Achieve a well-managed supply of firewood that is consistent with other Forest goals and helps meet the needs of people.

Need for Change: More intensive management of the fuelwood resource.

Desired Condition: Achieve a management strategy for pinyon-juniper resource.

Need for Change: Inventory and preparation of management strategies for the pinyon-juniper resource.

Desired Condition: Gain a better understanding of aspen resources and their increasing future potential.

Need for Change: Obtain better information on inventory and economics of aspen harvest to assess market potential and coordinate harvest to meet other resource needs.

Desired Condition: Maintain sufficient quantities of water to meet all on-Forest resource requirements.

Need for Change: Water yields from the Forest do not meet desired consumptive needs for irrigation and other water uses on many areas. In addition, there is increasing pressure from off-Forest groups to initiate diversions from headwater areas for irrigation, power generation, energy development and other purposes. These diversions may further threaten the stability of affected stream channels and their associated aquatic ecosystems. Deleterious effects on recreation, aesthetics, wildlife and watershed values may result. Non-consumptive instream flow requirements need to be assessed and appropriate water rights developed to assure that all resource needs are adequately protected.

Desired Condition: Integrate the exploration and development of mineral and energy resources on the Forest with the use and protection of other resource values.

Need for Change: On the ground administration must be increased to provide protection of resources. More training is needed for Forest Service employees to fulfill responsibilities.

Desired Condition: Achieve an acceptable survey of all high site density areas and some medium site density areas before the end of the planning period.

Need for Change: Accelerate cultural resource surveys.

Desired Condition: Achieve a level of cultural resource protection by the year 2030 that will safeguard against loss by vandalism and natural forces.

Need for Change: Increase emphasis on protection of cultural resources.

Desired Condition: Provide for the establishment of Research Natural Areas, as needed, and as available according to the criteria for their identification.

Need for Change: Continue the Research Natural Area establishment process.

Desired Condition: Achieve a sustained level of prescribed fire and fuels management that will reduce fire control costs and will produce through vegetative manipulation, increased productivity of the range resource and wildlife habitat.

Need for Change: Increase the emphasis on prescribed fire and fuels management.

Desired Condition: Provide optimum public ownership and rights-of-way.

Need for Change: Need to accelerate land exchange program and rights-of-way acquisitions. Need ability to purchase those private parcels that have potential public values where there is a willing seller.

Desired Condition: Complete survey, marking and posting of Forest property lines by 2030.

Need for Change: Accelerate the maintenance of posted property lines.

Desired Condition: Achieve a basic road transportation system that is adequate to meet resource use and management needs.

Need for Change: Provide increased road maintenance.

Desired Condition: Provide for needed major facilities corridors.

Need for Change: The Forest Plan needs to provide for major utility corridors.

Desired Condition: Provide substantial progress in reducing losses from insects and disease.

Need for Change: Provide increased emphasis to reducing damage caused by root rots. Increase emphasis on bark beetle protection by identifying high risk stands, monitoring and thinning stands.

G. RESEARCH NEEDS

The Forest planning process identified a number of potential problems. Many of these problems may be resolved by further research. Some of them are summarized below for consideration as research projects. The list will be updated during periodic evaluations of Plan implementation.

Fish and Wildlife

Research needs in relation to fish and wildlife management are:

-Resolution of the eutrophication problem in Panguitch Lake.

Timber Management

-How best to manage and utilize the Forest's pinyon-juniper resource.

-How to reduce damage caused by root rots.

-How to increase the potential uses of aspen resources.

CHAPTER III
PLAN RESPONSES TO ISSUES, CONCERNS, AND OPPORTUNITIES

This chapter shows how the proposed Plan addresses and responds to major public issues, management concerns, and resource opportunities that have been identified during the planning process.

A discussion of the process used to identify the issues to be resolved in this Plan is found in Appendix A of the accompanying Appendix document for the Plan. Additional information may be found in the public involvement records of the Dixie National Forest.

The specific methods for resolving and implementing management actions for the 14 issues dealt with are found in Chapter IV of this Plan. In that chapter the Forest's multiple-use goals and objectives are listed, as are the multiple-use prescriptions and associated standards and guidelines for each management area. Included with the management area discussion are the proposed and probable management practices.

The responses to the 14 issues are as follows:

Issue 1. To what degree should the Dixie National Forest place a greater emphasis on fire management?

Analysis of past fire occurrence and past fire suppression efforts provided a basis for determining a cost-efficient level of fire protection for the future. The plan provides for the cost efficient level, provides for prompt cleanup of logging slash, and a modest use of prescribed fire for resource management.

Issue 2. How much of an increased demand on Forest resources should be anticipated?

Planning analysis determined that the demand for forest resources would increase during the planning period. The plan provides for increased use of the forests recreation, mineral, and wildlife resources, and for no increase in the range, timber, and water resources.

Issue 3. To what degree should the Dixie National Forest consider the economic and social stability of communities dependent on Dixie NF resources?

The planning process evaluated the economic and social consequences to local communities. The plan provides for the continued stability of those communities dependent on forest resources. However, declining softwood timber harvest volumes in the latter decades of the planning period may require a shift in dependency to those forest resources that will be increasing.

Issue 4. To what extent should the Dixie National Forest accelerate the harvest of overmature timber to reduce mortality losses?

The plan provides for a continuation of timber harvest levels that will treat those overmature stands susceptible to insect attack and mortality where it meets Forest goals and objectives. This will be done in the most cost efficient manner practicable. Prescribed fire may also be used in low value stands.

Issue 5. To what extent should the Dixie National Forest emphasize wildlife management?

The plan provides increased emphasis on wildlife management, especially in the areas of wildlife habitat improvements and management direction to protect and coordinate habitat needs with other resource uses.

Issue 6. How should the Dixie National Forest manage its firewood resource?

Firewood will continue to be available at current levels throughout the planning period. However, the location of firewood gathering areas will shift with the timber harvest areas. Increased use of pinyon-juniper stands is also provided for.

Issue 7. What level of livestock use should be planned for?

Livestock use is planned to continue at 115,000 AUM's. Continued maintenance of existing revegetation areas will be required, along with maintenance of structural range improvements.

Issue 8. How should the Dixie National Forest protect the on-site values of streams, lakes, springs, riparian areas, and their associated fishery values?

The plan provides through its use standards and guidelines and management direction for increased emphasis on water and water related values.

Issue 9. How should the Dixie National Forest coordinate the leasing exploration, and development of energy and mineral resources, including location of energy transmission corridors, with other resource values?

The plan provides for the continued coordination of mineral activities with other resource values through the use of standards and guidelines and management direction. Existing and future needs for energy transmission corridors are identified and planned for.

Issue 10. How much emphasis should the Dixie National Forest place on coordinating or restricting Forest activities in order to maintain or enhance scenic values along major roads, other travel corridors, and areas of outstanding scenic quality?

Increased emphasis is placed by the plan on scenic values through the use of management direction and standards and guidelines.

Issue 11. What should the balance be between accommodating increased recreation use and other resource uses?

Recreation use occurs where there is an attraction. The location of facilities is based on the need to accommodate this use and preserve the physical environment. Developed facilities should be located to take advantage of local attractions and to enhance dispersed recreation activities. Recreation facilities will be located to meet the needs of public, unless there is a conflict with other resources which cannot be resolved.

Issue 12. Should the Dixie National Forest emphasize developed group sites over single family units when considering new recreation site construction?

The plan provides for constructing primarily single family units in new recreation sites because they will be located in areas not favored for group use. However, the plan also provides for reconstructing existing group sites to accommodate heavier use.

Issue 13. What should be done to separate the recreational activities of conflicting user groups such as cross-country skiers and snowmobilers?

The plan provides separate and distinct areas of the forest where the management direction will provide for recreation experiences ranging from primitive to rural. Conflict between recreational user groups will be minimized because there are sufficient areas of each experience type to accommodate the expected increase in user groups.

Issue 14. How much emphasis should we put on a transportation system that is safe and convenient for public use?

The plan provides for increased maintenance and reconstruction of the existing transportation system to enhance the safety and convenience of the public in a cost efficient manner. The new construction of roads, while primarily planned for resource utilization, will also be designed for the safety and convenience of the general public.

CHAPTER IV
FOREST MANAGEMENT DIRECTION

A. INTRODUCTION

The Forest Plan provides the long-range management direction for the Dixie National Forest. Direction is the guidance Forest personnel will use to achieve the results the Plan outlines. This chapter, by outlining that direction, will inform the public and other agencies about future programs.

Chapter IV includes:

A - Introduction
B - Forest multiple use goals and objectives
C - Projected outputs and budget requirements
D - A description of the desired future condition of the Forest
E - Forest-wide standards and guidelines
F - Management area standards and guidelines
G - Proposed and probable management practices

B. FOREST MULTIPLE USE GOALS AND OBJECTIVES

The goals and objectives define the direction of Forest-wide management. Goals are broad definitions of what will be achieved, while objectives are aimed at achieving those goals. By implementing the Forest Plan, the goals and objectives are translated into on-the-ground results.

1. Recreation

Goal No. 1. Provide a broad range of outdoor recreation opportunities for all segments of the public.

Objectives

a. Program to add facilities with a capacity of 875 PAOT to the current 5895 PAOT by 2020.

b. Bring the condition of Developed Recreation facilities to condition classes 1 or 2 by 2000.

c. Bring the Recreation Facilities water and sewage systems to applicable State standards by the year 2000.

d. Recreation residences at Pine Valley and Navajo Lake will remain with current management direction unless a higher use for the area develops.

Direction

a. Where possible provide group opportunities adjacent to communities. Maintain group recreation opportunities in proportion to demand.

b. Regulate the opening and closing dates of facilities to serve the public in an efficient and economical manner.

c. Develop and implement a vegetative prescription for each developed site.

d. Rehabilitate and define the following sites to accommodate increased use:

1985-1995	Spruces - 160 PAOT, Cedar Canyon - 95 PAOT
1995-2005	Duck Creek - 395 PAOT
2005-2015	Juniper Park - 110 PAOT, Blue Springs - 100 PAOT
2015-2025	Kings Creek - 225 PAOT
2025-2035	Te-Ah - 210 PAOT

Develop the following new sites to accommodate increased use:

1985-1995	Deer Creek - 250 PAOT
1995-2005	Blue Springs Point - 250 PAOT
2005-2015	Pine Valley - 250 PAOT
2015-2025	Fish Creek Lake - 125 PAOT

Goal No. 2. Allow private sector to accomplish desired high capital investment recreation opportunities to meet recreation demand after the year 2015.

Objectives

a. Inventory suitable sites that can be managed by organizations (other than the Forest Service) and make one available via prospectus by 1995.

b. Provide private industry the opportunity to develop cross-country ski touring and snowmobile centers in conjunction with developed ski areas and private land development.

c. Cooperate with private industry in developing and maintaining snowmobile and Cross Country ski trails on National Forest Lands.

d. Encourage private and other government entities to provide camping and picnic facilities on private land within and adjacent to the National Forest.

Direction

a. Meet more of the demand for downhill skiing by allowing additional facilities within the permitted area at Brianhead in accordance with the master plan.

b. Crystal Mountain has included in its proposed master plan its interest in development of Navajo Ridge for downhill skiing. Crystals downhill ski proposal will require further study and support of an environmental analysis.

c. Any Additional ski area proposals on the Forest will be evaluated via NEPA.

Goal No. 3. Provide a broad spectrum of low cost dispersed recreation opportunities.

Objectives

a. Provide ORV Roads and Trails, winter snow play areas, hunter camp areas, recreation stock trail heads, and others as needed.

b. Develop and publish recreation guides to regulate use and provide a service to the recreationist.

Goal No. 4. Encourage other landowners to provide dispersed recreation opportunities.

Goal No. 5. Provide a trail system adequate to disperse recreation users and prevent overuse in popular areas, and provide safety for the user and provide for more year around use of the Forest.

Objectives

a. Develop a summer and winter trail management plan.

b. Provide a trail system consisting of 690 miles of summer trail.

c. Provide a trail system consisting of 70 miles of trails for Cross Country skiing and snowmobiling.

d. Program Trail Construction Funds to reconstruct or construct 30 miles of trail each decade.

e. Build trailheads at East Hunt Creek, Deer Creek, Chriss Lake, Oak Creek Reservoir, and Blind Lake.

Goal No. 6. Provide a system of managed cross-country ski and snowmobile trails with adequate trailhead facilities.

Objective.

Develop winter sports parking in cooperation with the State Department of Park and Recreation, and the State Department of Transportation at the following areas: Midway 1990, Navajo Lake 1990, Strawberry-Uinta Flat 2000, Pine Valley 2000, Park Pasture to Sunflower Flat, Tom Best Road and U-12 and East Fork of Sevier 2000.

Goal No. 7. Provide opportunities for the use of off-road motor vehicles where they will not unacceptably impact Forest resources or unnecessarily impact other Forest users.

Objective

Review the travel plan annually and revise as necessary. The most current revisions will become a part of the management direction for the Forest Plan.

Goal No. 8. Provide for a pleasing visual landscape.

Objective

Rehabilitate or mitigate visually unacceptable conditions or facilities on the Forest by 2000. Inventory the unacceptable areas by 1990.

Goal No. 9. Protect the cultural resources located on the National Forest from land disturbing activities and public vandalism.

Objectives

a. Complete an inventory of all cultural resources on National Forest Land identified as having a high or moderate potential by 2000. Nominate qualifying significant sites for the National Register.

b. Develop an overview and a plan for all enevaluated sites and sites determined eligible and the interpretation, protection, and maintenance of sites nominated to the National Register within one year of the property's listing.

c. Complete a cultural resources overview before the next plan iteration.

Goal No. 10. Preserve the natural ecosystems in Research Natural Areas.

Goal No. 11. Coordinate recreation programs with local, county, state and other Federal recreation agencies.

Objectives

Work with the National Park Service, Bureau of Land Management, and State Parks to determine recreation needs along the Boulder-Grover Road.

Nominate U-14 Highway and Boulder-Grover Road as scenic highways by 1990.

Coordinate with other Federal and State agencies to determine what agency may best meet recreation demands.

2. Wilderness

Goal No. 12. Manage designated Wilderness Areas in accordance with National Wilderness Act of 1964 and the Utah Wilderness Act of 1984.

Objectives

a. By 1990 develop and implement a wilderness management plan which describes specific conditions to accomplish planned objectives in the Wilderness Areas.

b. Provide adequate trail and trailhead facilities to accommodate increased use of wilderness.

Direction

a. Construct 12 miles of new trail to access Box Death Hollow by 1995.

b. Evaluate and reconstruct, as needed, the major access trail to Ashdown Gorge and Pine Valley Mountain Wilderness by 1995.

c. Provide trailhead facilities as follows: Whipple - 2000, Forsythe - 1990, New Harmony - 1990, Oak Grove - 2000, Crystal Spring - 2010, Rattlesnake - 2010, Hells Backbone - 2000, Pine Creek - 2010, Blue Spruce - 2000, and Twisted Forest 1990.

3. Wildlife and Fish

Goal No. 13. Coordinate Fish & Wildlife Program with Utah DWR.

Objective

Conduct periodic meetings with Utah DWR to discuss and plan projects that may have effects on fish and wildlife habitat populations. Special emphasis will be on MIS and other selected wildlife species.

Goal No. 14. Improve the quantity and quality of aquatic habitats through direct habitat improvement and increased coordination with other land use programs.

Objectives

a. Improve aquatic habitat by developing/improving an average of 30 structures and 100 acres yearly during the period 1986 to 1990.

b. Improve aquatic habitat by developing/improving an average of 125 structures and 210 acres annually during the period 1990 to 2030.

c. Improve the aquatic habitat in approximately 20 lakes during the period from 1990 to 2000, and assist in the correction of Panguitch Lake eutrophication problems by 2030.

d. Provide aquatic habitat analysis input for timber sales, road construction projects, range allotment plans and recreational developments. Also provide input on non-Forest activities that affect the Forest such as dam construction, hydropower developments, and water rights adjudication.

e. Improve the Forest aquatic habitat data base for project and land use planning by completing aquatic inventories using GAWS and R-1 stream channel stability ratings on stream orders Class 3 and higher by 1990. Complete inventory on all streams by 1995. Inventory all lakes which have fisheries potential by 1995.

Goal No. 15. Maintain or enhance the terrestrial habitat for all wildlife species that presently occur on the Forest.

Objectives

a. Improve an average of 650 acres of wildlife habitat annually and construct an average of 6 structures annually during the period 1986 through 1990.

b. Improve an average of 700 acres of wildlife habitat and construct an average of 17 structures annually between 1990 and 2030.

c. Provide wildlife habitat analysis input to Forest planning as required to maintain current wildlife outputs.

d. Complete special habitat inventories using Regional guidance by the target dates specified for each of the following special habitats: riparian, 1987; old growth, 1989; aspen, 1990.

e. Provide wildlife habitat analysis input to Forest Service and non-Forest Service land management activities that will affect the wildlife resources.

Goal No. 16. Maintain or improve the current capacity of big game winter ranges on National Forest lands.

Objectives

a. Objectives a. and b. of Goal No. 14 are applicable to meeting this goal.

b. By 1990, restrict or eliminate vehicular traffic (including over-the-snow vehicles) from November 1 through May 1 on identified critical winter ranges.

Goal No. 17. Manage classified species (bald eagle (E), peregrine falcon (E), Utah prairie dog (T), Astragalus perianus (E), Bonneville cutthroat trout (S), Colorado River cutthroat trout (S), (E = Endangered, T = Threatened, S = Sensitive) habitat to maintain or enhance their status through direct habitat improvement and agency cooperation.

Objectives

a. Monitor population status of the peregrine falcon and bald eagle annually.

b. Cooperate with Utah Division of Wildlife Resources in the delisting of the Utah prairie dog by 1995.

c. Give priority to structural habitat improvement work for Bonneville cutthroat trout. Complete all necessary improvements in identified Bonneville cutthroat habitat by 1990.

d. Complete inventory of sensitive plant and animal species on the Forest to determine their status by 1990.

4. Range

Goal No. 18. Continue to improve management on all allotments.

Objective

Manage all allotments to maintain suitable range presently in satisfactory condition, and improve suitable range that are is less than satisfactory condition so that all suitable range is in at least the "Fair" condition class by 2030.

Goal No. 19. Cooperate with counties and other land managers in controlling noxious weeds specifically, Scotch, musk and Canada thistle.

Goal No. 20. Manage the North Hills Wild Horse Herd in cooperation with BLM according to the Wild Horse and Burro Act and the approved plan.

Goal No. 21. Eliminate conflicts between livestock and wildlife for forage on critical big game winter ranges by revolving in favor of wildlife.

Goal No. 22. Maintain an effective predator control program in cooperation with the U.S. Fish and Wildlife Service and State agencies.

Goal No. 23. Manage recreation horse use so as to not overgraze meadows traditionally used by recreationists.

5. Timber

Goal No. 24. Emphasize harvesting productive sawtimber stands that are highly or moderately susceptible to attack by the mountain pine beetle and other forest pests.

Goal No. 25. Harvest timber in coordination with other resources

Objectives

a. Most Retention and Partial Retention Visual Quality Areas will be harvested using shelterwood or selection methods. Some small clearcuts may be made to benefit other resources, or for pest management when visual objectives can be met.

b. Timber sale and timber stand improvement activities will provide for the eradication of dwarf mistletoe while meeting visual quality standards in most cases.

c. Ponderosa pine, Engelmann spruce, subalpine fir and Douglas-fir will be harvested by shelterwood cutting where feasible. Aspen will be harvested primarily by clearcutting.

d. Some sawtimber may be harvested on slopes between 40 and 70 percent by cable or other overhead systems where it is economically feasible and can be accomplished without damaging the soils, visual quality or other resource values.

Goal No. 26. Improve the growth rate in timber stands through silvicultural treatment.

Objectives

a. Precommercially thin timber stands where numbers of saplings and poles prohibit free growth of crop trees to a reasonable commercial diameter

b. Schedule timber sales and other silvicultural treatments to convert mature timber with insect or disease problems, poor quality, and/or low value species to young, thrifty stands of high value species.

c. Use the small sales program and non-convertible product sales to intensify silvicultural management on small areas not conducive to large sales or contracts.

d. Initiate a program to release conifer understories overtopped by aspen.

Goal No. 27. Promote the utilization of insect killed trees, forest debris, slash and unmerchantable green trees through an aggressive, coordinated firewood sales program.

Objectives

a. Continue balanced personal use and commercial fuelwood programs at levels consistent with fuels management objectives and meeting projected fuelwood demand.

b. Design timber sales to provide access for fuelwood gathering where consistent with wildlife and visual objectives.

c. Design sales of green softwoods and aspen to accomplish silvicultural, fuel management, wildlife and other resource management goals.

Goal No. 28. Required short-term and intermittent timber sale roads will be constructed to the minimum standard necessary to accommodate logging traffic.

Objectives

a. A short-term local system road will be used when access is not needed beyond three years after the sale.

b. A road needed longer than three years after the sale for firewood, future timber harvest, cultural treatment or other resource development, but will not be open for continuous public use, will be managed as an intermittent service road.

6. Soil and Water

Goal No. 29. Provide water and soil guidance to other resource activities to protect or improve water quality and quantity and soil productivity.

Objectives

a. Identify and adopt best management practices applicable to the Forest and monitor effects on soil erosion and water quality in accordance with Public Law 92-500.

b. Comply with State water quality standards during land management activity.

c. Manage riparian areas according to the Riparian Management Standards and Guidelines. Protect or improve riparian dependent resources during management activities within or affecting riparian areas.

d. Protect municipal water supply watersheds.

Goal No. 30. Continue to improve and update soil and water resource inventories of the Forest to improve interpretations for management.

Objectives

a. Complete order three soil survey for the Forest in cooperation with the National Cooperative Soil Survey Program.

b. Complete water resource inventory on all watersheds.

Goal No. 31. Secure and quantify instream flows needed for National Forest purposes, including maintenance of favorable conditions of water flow.

Objectives

a. Complete a water uses inventory for the Forest and update annually.

b. Secure instream flows of perennial streams needed to maintain channel capacity to transport water and sediment, and to provide for wildlife, vegetation, and scenic diversity.

Goal No. 32. Design and implement practices on the ground that will reestablish acceptable soil, hydrologic, and vegetative conditions that are sufficient to secure and maintain favorable water flow.

Objectives

a. Keep the watershed restoration project inventory up-to-date and complete the existing backlog of watershed restoration projects by 2000.

b. Give priority to problem areas in high value watersheds and where accelerated erosion exists or is rapidly increasing.

Goal No. 33. Increase water yields where possible through timber harvest program when consistant with other multiple-use goals.

7. Minerals

Goal No. 34. Integrate the exploration and development of mineral and energy resources on the Forest with the use and protection of other resource values.

Direction

Administer in conjunction with Bureau of Land Management (BLM) leasable mineral activities (oil and gas, coal, geothermal, phosphate) under joint operating plan. Conduct periodic inspections to insure compliance with surface protection and reclaimation requirements of the lease and the approved plan of operations. Work through BLM to correct unacceptable activities.

Mineral rights under substantial portions of the Forest are reserved to private parties or the State of Utah. Rights of access and development must be recognized in the administration of these areas of the National Forest.

Goal No. 35. Administer the mineral resources of the Forest to provide for needs of the American people and to protect and conserve other resources.

Objective

Inventory common variety mineral materials basically accessed from along arterial and collector roads by 1990.

Goal No. 36. Respond to mineral activity requests in a timely manner which complies with time limits established in the Interagency Agreement between Bureau of Land Management and Forest Service for mineral leasing, dated 6/19/84.

Objective

Program to accomplish mineral case reviews and decisions within one year.

8. Lands

Goal No. 37. Achieve the landownership best suited managing the resources of the Forest.

Objectives

Program to accomplish two land exchanges per year to improve landownership patterns and reduce management costs.

Direction

a. Cooperate with the State of Utah to achieve land adjustments beneficial to both.

b. Consider National Forest lands for a BLM/Forest Service interchange.

Goal No. 38. Locate and mark National Forest boundaries.

Objective

Survey and post 30 miles of property lines annually.

Goal No. 39. Provide access to National Forest lands needed for public use administration, and permittee activities.

Objective

Acquire road and trail rights-of-way as needed to provide reasonable access in accordance with the Forest rights-of-way acquisition program.

Goal No. 40. Protect National Forest lands from trespass and undesirable appropriation.

Objectives

a. Develop and implement a monitoring system to identify occupancy trespass by 1988 and initiate action to resolve trespass (Goal No. 41).

b. Evaluate existing withdrawals in accordance with FLPMA and BLM regulations by 1989.

c. Recommend revocation of withdrawals no longer needed to protect National Forest surface resources by 1992.

d. Sites where future high investments (NFRS sites, administrative sites, and downhill ski areas) are planned and where mineral potential is high, will be evaluated for withdrawal from mineral entry.

Goal No. 41. Resolve encroachment and title claims.

Objective

Use Small Tracts Act and other authorities to resolve encroachment and title claims.

9. Facilities

Goal No. 42. Manage Forest communication system in accordance with the Forest Communications Plan.

Objectives

Provide a communications system adequate to ensure efficient, Forest-wide communications.

Goal No. 43. Administrative Sites and Buildings. Develop a management program for the operation and maintenance of administrative sites, buildings, and work centers needed for the economical and efficient administration of the Forest.

Objectives

a. Inventory possible work center sites by 1986 and construct work centers needed to facilitate resource outputs by the year 1990.

b. Reduce the number of buildings to conform to the Forest needs as projected by the facilities management plan.

c. Correct health, safety, and sanitation deficiencies at all sites by FY 1990.

d. Have approved site plans for all facilities by the year 1990.

Goal No. 44. Transportation - Develop a road management program to maintain a safe, economical, functional, and environmentally sound transportation system that serves the resource elements.

Objectives

a. Complete development of a road management program by the year 1988.

b. Complete condition surveys and establish design criteria for all collector and arterial roads by 1988.

c. Begin monitoring traffic on priority collector and arterial roads by 1988 and have a full scale traffic monitoring program operational by the year 1990.

d. Complete Forest-wide detailed transportation analysis consistent with the resource needs and financial constraints by 1990.

e. Complete reconstruction of the basic collector and arterial road system by the year 2010. Ungrade maintenance to a minimum level of "3" as reconstruction is completed.

f. Develop an active fuelwood access program by the year 1988.

10. Protection

Goal No. 45. Develop a well planned and executed fire protection and fire use program that is cost efficient and responsive to land and resource management goals and objectives.

Objectives

a. There will be only one Fire Management Action Plan for the Forest. Specific Action and manning Plans and Annual Mobilization and Operation Plan are chapters within the Action Plan.

b. Include provisions in all permits and use authorizations for fire prevention and suppression.

c. Cooperative fire protection will be emphasized to provide for joint fire protection through offset agreements, and combined fire forces.

Goal No. 46. Through cost effective analysis, develop an active fire prevention program with cooperating agencies that is directed towards specific areas and causes based on probability of occurrence, damages expected, and program costs.

Objective

Develop a cooperative fire prevention plan for the area by the 1987 fire season and update annually.

Goal No. 47. Maintain fire suppression capabilities which allow an appropriate suppression response to all wildfires.

Objectives

a. Provide preplanned fire suppression action on all wildfires which is cost effective and protects life and property.

b. Each wildfire ignition will receive an appropriate response (confinement, containment or control). Suppression intensity and extent will be based on resource values, costs, burning conditions, safety, protection of private property, fire organization committment and a current National Fire Management Analysis.

Goal No. 48. Establish and maintain fuel mosaics which result in an acceptable hazard and spread potential of wildfire, allow an appropriate wildfire suppression, and coordination to other resource programs and objectives.

Objectives

a. Use prescribed fire when cost effective to achieve vegetative manipulation objectives such as for other resources including timber, range, and wildlife.

b. Utilization (fuelwood) will be stressed as the primary method of fuel reduction with follow-up disposal by other means as needed.

c. Continuous fuel types, especially in areas where activity created fuels have been added to natural fuels, will be broken up into blocks of forty acres or less by use of roads, constructed fuel breaks or fuel reduction corridors.

d. Vegetative modification projects should be designed to break-up continuous fuel types and serve as fuelbreaks.

Goal No. 49. Provide adequate law enforcement to protect National Forest resources and property.

Objectives

a. Inform the public of laws and regulations by:

- Posting all recreational sites and areas of concentrated use.
- News releases to the media.
- Personal contacts with individuals and groups.
- Other notices and signs.

b. Keep law enforcement people visible by:

- Recreation patrolman in uniform.
- Identified vehicles.
- Proper identification.

c. Cooperate with other law enforcement agencies.

d. Adequately train all law enforcement personnel.

e. Maintain a special agent assigned to the zone.

f. Have at least one trained law enforcement officer (Level II) on each Ranger District and one Level IV on Forest.

g. Determine workload by reporting all known violations.

h. Investigate all man-caused fires, thefts, acts of vandalism, and threats, intimidations, or assaults and battery against Forest Officers.

i. Provide protection of funds collected and to employees collecting fees.

j. Enforce regulations concerning campground fees.

k. Monitor use in campgrounds and dispersed areas to ensure proper use of and protection of resources.

11. Public Information

Goal No. 50. Resource Management - Inform the public of National Forest resource management as related to the national and local economy.

Objectives

a. Emphasize resource management as a cost-effective activity.

b. Relate the information to the management direction as established in the Forest Plan.

Goal No. 51. Visitor Information Support - Provide interpretive service programs to help resolve management conflicts and increase public understanding of National Forest management.

Objectives

Provide safe and enjoyable use of recreation opportunities by:

- Stress the use of volunteers to supplement the Forest information program and to improve visitor contacts.
- Provide visitor information services at all Ranger District offices, and the Forest Supervisor's Office.
- Provide and participate in appropriate public displays or events.
- Complete timely updates of important Forest publications including Forest recreation maps and Travel Plan maps.
- Continue development and increase availability of the Recreation Opportunity Guide by 1990.

Goal No. 52. Environmental Education - Support the environmental education efforts of the local school systems.

Objective

The Forest will coordinate development of Environmental Education sites and curriculum, but the programs will be administered by the participating schools.

Goal No. 53. Public Involvement - Insure appropriate public participation in National Forest planning and decision making.

Objectives

Maintain full contact with all government and special interest groups and the general public by:

- Maintaining contact with state government units,
- Maintaining contact with the state legislators,
- Maintaining contact with congressional delegation,
- Maintaining contact with all counties and municipalities within or adjoining the Forest,
- Maintaining contact with all identified special interest groups including industry, environment, recreation, and permittee,
- Maintaining local contacts will be District Rangers' responsibility.
- Ensuring adequate public notification by mass media, personal contact, and direct mail to allow the public to participate.

Goal No. 54. Increase and maintain service to the public.

Objectives

a. Increase public contacts in the field.

b. Emphasize the HOST Program and "Service" concept through employee training.

c. Inform the public of Forest activities and opportunities through the media.

d. Improve appearance of facilities, vehicles, and work areas.

e. Redesign facilities and visitor information centers to accommodate elderly and handicapped persons.

f. Provide recreational opportunities such as trails on National Forest land adjacent to private resorts.

g. Provide access to firewood.

Goal No. 55. Support Human Resource programs to ensure their availability for use in the recreation program.

Objectives

a. Increase present quota of 20 enrollees to 30 as they become available.

b. Maintain a HOST in all developed sites where a fee is charged.

C. PROJECTED OUTPUTS AND BUDGET REQUIREMENTS

TABLE IV-1
PROJECTED AVERAGE ANNUAL OUTPUTS FOR THE FOREST PLAN

OUTPUTS/ACTIVITIES	1990	2000	2010	2020	2030
RECREATION (MVRD)					
Developed Recreation	474	651	1060	1652	2010
Dispersed Recreation	803	1253	1787	2692	3699
ROS-Semi-Primitive Nonmotorized	123	192	258	412	566
ROS-Semi-Primitive Motorized	205	320	430	687	944
Roaded Natural Appearing	369	575	775	1237	1700
Rural	106	166	224	355	489
WILDERNESS					
M Acres	83	83	83	83	83
Recreation Use (MRVD)	8	13	17	27	38
RANGE					
Permittee Livestock Use (M AUMS)	115	115	115	115	115
Wild Horse Use (AUMS)	300	300	300	300	300
TIMBER					
Allowable Sale Quantity (MMCF)	5.1	5.2	5.3	5.3	5.4
Allowable Sale Quantity (MMBF)	26.4	26.0	26.3	26.4	26.4
Softwood Sawtimber (MMBF)	22.9	15.7	14.9	17.4	21.3
Softwood Roundwood (MMBF)	.3	.4	.6	.7	.8
Hardwood Sawtimber (MMBF)	2.8	9.4	10.3	7.8	3.7
Hardwood Roundwood (MMBF)	.4	.5	.5	.5	.6
Softwood Firewood (MMBF)	7.7	4.2	4.3	5.7	7.1
Hardwood Firewood (MMBF)	3.0	4.2	4.2	2.3	2.3
WATER & SOIL					
Increased Yield over Natural (ACRE FT)	4300	8300	8100	6700	6000
% of Water Meeting State Standards (M ACRE FT)	98	98	98	100	1'
MINERALS					
Acres Leased (M ACRES)	1410	1500	1450	1400	1400
WILDLIFE & FISH					
User Days (MWFUD)	180	202	197	202	202

TABLE IV-2
PROJECTED AVERAGE ANNUAL ACTIVITIES FOR THE FOREST PLAN

OUTPUTS/ACTIVITIES	1990	2000	2010	2020	2030
WILDLIFE & FISH					
Nonstructural Habitat Imp (Acres/Year)	2540	2602	2665	2732	2795
Structural Habitat Imp (Structures/Year)	154	162	166	170	175
TIMBER (ACRES)					
Reforestation	1588	402	454	3353	1646
Timber Stand Imp	5000	54	1769	628	250
WATER & SOIL					
Improvement (Acres)	85	138	35	20	20
MINERALS (ENERGY AND NON-ENERGY)					
Process Exploration Proposals (Cases)	35	60	55	50	50
Lease & Permit Applications (Cases)	656	690	635	615	605
HUMAN COMMUNITY DEVELOPMENT					
Senior (Enrollees)	9	9	9	9	9
Volunteer (Enrollees)	15	15	15	15	15
Other Human Resources (Enrollees)	6	6	6	6	6
LANDS					
Acquisition and Exchange (Cases)	2	3	3	4	4
RANGE					
Revegetation (Acres/Year)	1050	1050	1050	1050	1050
Noxious Weed Control (Acres/Year)	60	60	60	60	60
FACILITIES					
Trail Reconstruction (Miles)	28	65	39	0	0
Trail Construction (Miles)	5	5	1	0	0
Collector Rd Const./Reconst. (Miles)	2	1	1	1	1
Local Road Const./Reconst. (Miles)	60	52	35	33	28

TABLE IV-3
PROJECTED AVERAGE ANNUAL COSTS FOR THE FOREST PLAN

OUTPUTS/ACTIVITIES		1990	2000	2010	2020	2030
A20	Recreation O&M	687	773	884	870	816
A30	Recreation Const./Reconst.	172	244	167	167	0
A40	Coop Law Enforcement	37	50	52	53	54
BAO	Wilderness O&M	46	49	54	57	57
BBO	Wilderness Improvements	64	20	20	20	20
C20	Wildlife & Fish O&M	222	147	176	136	169
C30	Wildlife Improvements	102	186	169	195	177
C40	Fish Habitat Improvement	51	62	56	65	60
D20	Range Land O&M	351	420	395	428	430
D30	Range Land Improvement	139	156	173	122	122
EEO	Timber Sales	1575	1099	887	1445	1475
EFO	Timber Sales O&M	50	30	30	40	50
E40	Approp. Reforestation	505	60	60	75	60
E50	Approp. Timber Stand Improvement	370	100	100	330	100
F20	Soil, Water, and Air O&M	115	128	148	141	107
F30	Watershed Improvement	63	68	60	73	73
G10	Minerals Mgmt. Energy	239	331	303	291	274
G20	Minerals Mgmt. Non-Energy	108	112	100	93	80
H10	Rural Community and Human Resource	98	98	98	98	98
J20	Land Mgmt. Planning	60	60	60	60	60
J30	Land Ownership Mgmt.	242	331	358	382	410
LAO	FA&O Facility O&M	140	152	100	116	184
LBO	Road O&M	600	700	400	500	400
LFO	FA&O Const./Reconst.	92	42	42	42	42
LGO	Roads Const./Reconst.	152	50	50	50	50
P20	Fire Protection	332	334	334	334	334
P30	Fuels Treatment Invst.	4	30	30	30	30
T10	General Administration	1000	1000	800	950	775
GRAND TOTAL (1982 Dollars)		7616	6832	6106	7163	6508

D. DESIRED FUTURE CONDITION OF THE FOREST

This section is a description of the desired future condition of the Forest resulting from implementation of the Preferred Alternative described in the accompanying DEIS.

1. Recreation

Developed facilities will be operated at a reduced service level during the pre- and post-vacation periods. Fee and high use facilities (about 60 percent) will be operated at the full service level and the remainder at a reduced service level during the summer vacation period from June 1 to September 10.

Developed sites, both public and special use, will be crowded or overcrowded during peak use periods. The condition of developed recreation facilities will be improved to condition class 1 or 2. Additional camp sites will be provided.

The condition of riparian areas within developed recreation sites will be maintained or improved.

Trail conditions will be improved. Adequate trailhead facilities for dispersed recreation will be provided.

Projects that will benefit public health, safety, sanitation, and water supplies have highest priority for reconstruction. An average of five camping units (26 PAOT) will be rebuilt annually over the fifty year period to replace wornout facilities. New construction will add three to five family units annually until 2020. Some facilities for picnicking will be enlarged by new construction.

Downhill skiing capacity will increase by 3800 skiers at one time (SAOT) within existing and expanded ski area boundaries at Brian Head and Crystal Mountain, for a total of 6900 SAOT's on the Forest. Recreation special uses will meet at least minimum environmental and public service standards. Trailhead parking and sanitation facilities for cross country skiing and snowplay will be provided at trailhead locations.

Demand for developed recreation - public will be met until about 2015. The Forest will work with other government agencies and the private sector to help meet demand after 2015. Demand for dispersed recreation will never exceed supply. If use continues to increase at the present rate, demand for downhill skiing will be met until the year 1995, and Supply for developed recreation in the private sector will not increase unless future expansion takes place.

Some lands in the area will be identified for exchange.

About 222,300 acres will remain in the semi-primitive recreation (ROS) class until the year 2030. These areas will be managed for primitive recreation experiences.

About twelve trailhead facilities will be built. Private industry will be provided the opportunity to develop ski touring in Brian Head area. Private industry will likely provide developed snowmobile centers at Duck Creek and Brian Head on private land. The Forest will provide opportunities for trails adjacent to these centers.

The Research Natural Areas at Table Cliff, Red Canyon, and Timbered Cinder Cone will be established . The natural condition of these areas will be protected. Analysis of additional candidate areas will continue.

Cultural resources will be protected from resource activities but some will be vandalized by human activity.

General travel plan direction will be incorporated into the Forest Plan, however, the travel restrictions will be published and changed periodically or as needed. Where motorized cross country travel causes unacceptable resource damage, further ORV restrictions may be imposed.

A system of over 690 miles of summer trails will be maintained, all at Level 2 or better. Three miles of trails will be reconstructed or constructed annually. Areas for Snowmobile and cross-country ski trails will be made available. No additional trails will be included in the National Trail System.

The Bristlecone Pine Trail will be developed into an interpretive trail for the Handicapped.

Integrated pest management techniques will be used to protect, maintain, or enhance recreation resources.

The visual quality objectives for the proposed Forest Plan will be as follows:

Category	Acres under Proposed Plan	Acres change from present
Preservation	83,000	0
Retention	854,000	0
Partial Retention	642,000	0
Modification	205,000	-44,000
Maximum Modification	100,000	+44,000

2. Wilderness

The heavily used area of the Pine Valley Mountain Wilderness area will be managed at the full service level. The remaining area of the Pine Valley Wilderness and the Ashdown Gorge and Box-Death Hollow Wilderness areas will be managed at reduced service level. Trails will be maintained to Level 2. Trails will be reconstructed to correct degradation and provide safe passage (5 miles per year) during the period 1986 to 1995. Additional trail opportunities will be provided by new trail construction, about one mile per year during the same 10 year period.

Recreation use will be regulated to remain within the social and ecological carrying capacity of each area. Capacity studies will be completed for each area prior to limiting use. Vegetation and soil conditions should remain stable with improvement of minor areas that are now overused.

All fires in wilderness will be suppressed except where a prescribed natural fire program has been approved.

3. Wildlife and Fish

Current habitat of threatened and endangered species will be maintained. Peregrine falcon habitat will be improved through a cooperative program with the Utah Division of Wildlife Resources. Habitat will be improved for sensitive species, including aquatic species.

Fisheries habitat will be improved by increasing the habitat capability of streams and by expanding present habitat in marginal lakes. Improve riparian ecosystems that are currently in an acceptable condition. Big game winter range capacity will be maintained or increased where possible through direct habitat improvement. Non-game habitat improvement and non-consumptive wildlife uses will be emphasized in some management areas.

All MIS habitat will be maintained at levels that meet or exceed requirements for minimum viable populations.

4. Range

This plan will permit 115,000 AUM's of grazing. Riparian areas will only be moderately impacted. Allotment management plans will incorporate objectives and guidelines to ensure proper management. The program for noxious weed control will be strengthened, with priority on controlling new and small populations.

Sensitive plant species will be protected and maintained at least at current levels. The North Hills wild horse herd will remain at about 50 head. Winter game ranges used by wildlife and livestock will continue to be improved where possible.

Predator control will be allowed where needed. Integrated pest management techniques will be used to protect, maintain, and improve range resources.

5. Timber

Areas available for timber harvest will generally include slopes less than 40 percent. Some slopes over 40 percent will be available for cable logging. The Pine Valley Mountains, Ashdown Gorge and Box-Death Hollow Wilderness areas and designated Research Natural Areas will be excluded from timber harvest. Small areas of mature timber scattered throughout the Forest have tentatively been reserved for old-growth dependent wildlife species. Some of these areas may be returned to the available timber base after further evaluation. Designated stands of bristlecone pine will be excluded from timber harvest.

A combination of silvicultural harvest methods that maximize present net value will be used in conjunction with meeting multiple use objectives and associated constraints on timber management. Intensive practices such as precommercial thinning will be used in all timber working groups except aspen. Timber harvest emphasis will be shifted to the mixed conifer and spruce-fir types for the next few decades as the ponderosa pine type has been most heavily cut in the past.

Future silvicultural condition of timber stands will be improved over current conditions. Conversion of slow growing overmature stands to younger, more vigorous stands will provide the benefits of increased timber growth and reduced susceptibility to insects and disease. Emphasis on harvesting mature stands, stands of poor quality and low value species and stands with insect and disease problems will reduce mortality and growth loss.

The supply of firewood created by this alternative, when added to existing dead timber, will meet the demand on at least half of the Forest through 2030. Firewood supply on Cedar City Ranger District, where about one-half of the Forest demand exists, could be increased by offering additional green aspen and pinyon-juniper.

6. Water and Soil

Water quality and soil productivity will be maintained. The larger identified watershed improvements will be completed by 2000, reducing soil erosion and stream sedimentation. Condition of riparian areas will be maintained, or if necessary improved.. The soil and water resource inventories of the Forest will be improved. Soil erosion and water quality will be monitored. Watersheds tributary to the Colorado River may produce an average of 2800 acre-feet more water than natural annually by the year 2030. This approaches the greatest increase that can be achieved without resource damage.

7. Minerals

The decision to recommend issuance of leases for oil and gas exploration will be based on the Forest Plan with reviews on a case by case basis. Development proposals of oil and gas leases will receive an interdisciplinary field analysis.

Locatable mineral operations proposals will be evaluated on a case-by-case basis through the environmental analysis process.

The Forest transportation plan and mineral road development will be coordinated. Existing and planned roads will be used whenever possible.

8. Lands

Land will be acquired or disposed of as shown in the land adjustment program. Land exchange offers will be responded to within one month, and two or more land exchanges a year will be completed.

Access to Forest land will be assured by acquisition of road and trail rights-of-way. Road and trail rights-of-way will be acquired annually in 2ccordance with the long range rights-of-way acquisition program.

High priority will be given to meeting standards for dam inspection. Emergency preparedness plans will be prepared for all dams. Some small, high elevation reservoirs will be abandoned for water storage when large reservoirs are built at lower elevations.

Five sites will be designated for electronic facilities - Big Mountain, Blowhard, Barney Top, Wilson Peak, and Henderson Rim.

Utilities will be allowed in designated corridors and planning windows.

Current mineral withdrawals will be evaluated as required by law. It is expected that this evaluation will result in the revocation of some withdrawals. New mineral withdrawals will be evaluated for future high investment sites that also have high mineral potential.

Special use fee returns will increase as a result of new uses and higher fees.

9. Facilities

Buildings and Administrative Sites - The number of buildings will be managed according to the facility master plan. Maintenance will stress health, safety, and energy items. The structural integrity will be preserved to continue the function of the facility. Major maintenance and reconstruction will be accomplished as funds are programmed using priority, value and budgetary systems.

Transportation - A safe, functional, and environmentally sound transportation system will be developed. Road construction will be coordinated with other resource activities. The basic arterial collector system, will be constructed or reconstructed to meet the Road Management Plan. Annual construction through 1990 will include 2 miles of public works, 28 miles of timber, development road, and 5 miles of oil and gas development. Traffic may be restricted on roads not constructed to an all-weather standard. The Road Management Plan will identify road closures.

Substandard local roads will be rebuilt to standard or abandoned as determined in the road management program. Annual local road construction and reconstruction will average 40 miles for developed recreation and timber sales. About 5 miles of local roads will be constructed annually by the oil and gas industry to accommodate their access needs. Campground roads will be maintained to Level 4 or 5. Maintenance levels for other local roads will be determined in the road management program.

About seven substandard bridges will be replaced by 2000. An accelerated program of maintenance and repair will be completed between 1989 and 1997. All stream crossing structures and fords will be evaluated for replacement with structures that will not impede fish passage or generate sediment.

10. Protection

Appropriate suppression response will be taken on all wildfires.

Prescribed fire from planned ignitions will be used for fuels treatment and resource improvement. In the three Wilderness areas, unplanned ignitions will be used to maintain natural ecosystems. Manipulation of vegetation will provide adequate fuels reduction.

Law Enforcement

Increasing public use of the Forest will increase law enforcement problems. Cooperative law enforcement agreements with state and local law enforcement agencies will be continued.

E. FOREST-WIDE STANDARDS AND GUIDELINES

This section describes the management direction and standards and guideline which are applicable forest-wide and apply on all management areas, except where the specific direction in a management area supercedes. The purpose of this section is to avoid duplicating the forest-wide direction and Standards and Guidelines in each area. The Standards and Guidelines contained in this plan incorporate the planning guidance and requirements of the Regional Guide for the Intermountain Region.

This section and the section following (Management Area Direction) provide specific direction for day to day management of the National Forest. In practice, the land manager would use the Forest map and this section to find management direction. When the map indicates a management area is involved the specific direction contained in the management prescription (next section) also applies.

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
Diversity on National Forests and National Grasslands (A00)	1. Maintain structural diversity of vegetation on management areas that are dominated by forested ecosystems.	A. Maintain or establish a minimum of 20 percent of the forested area within a management area to provide vertical density. B. Maintain or establish a minimum of 30 percent of the forested area within a management area to provide horizontal diversity. C. In forested areas, create or modify created openings so they have a Patton edgeshape index of at least 1.4 and have at least a medium-edge contrast.
	2. Retain existing medium- or high-contrast edges within forested management areas.	
	3. If medium-contrast edges are created in units dominated by grassland or shrubland, create openings with Patton edgeshape index of at least 1.4.	A. Maximum size of individual treated areas is 500 acres.
	4. In forested management areas, maintain a minimum on each treated area, an average of 20-30 snags (in all stages of development) per 10 acres, well distributed over the management areas.	A. Provide at a minimum, an average of 2-12 hard snags per 10 acres of the following minimum diameters (where biologically feasible): - Ponderosa pine, Douglas-fir and spruce-fir: 10 inches dbh. - Aspen: 8 inches dbh B. Retain an average length per acre of down-dead logs (where feasible) of the following minimum diameters: - Ponderosa pine, Douglas-fir and spruce-fir - 12 inch diameter 50 linear feet per acre - Aspen - 10 inch diameter 33 linear feet per acre
	5. Manage aspen for retention wherever it occurs, unless justified by one of the following: A. Conversion of determinate aspen to conifers, or shrub-or grass/forb seral stages for wildlife, esthetic, recreation, transportation, or watershed purposes.	A. Silvicultural standards: (These standards may be exceeded in areas managed for old growth.) 1. Clearcut (Stand or Clone) Rotation Age: 80-120 years Thinning Cycle: N/A

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
	B. Conversion of determinate aspen to conifers on sites with a high demand for softwood, or C. Areas of aspen which are larger than are needed for wildlife or esthetic purposes. 6. If determinant aspen stands are managed for regeneration, treat contiguous areas no larger than 40 acres, unless larger areas are needed to protect aspen regeneration or prevent decadence. Treat entire clones in determinate (climax) aspen stands can be converted to other cover types if needed to meet other objectives.	2. Limit individual regeneration acres to a maximum of 40, or the size of a clone, whichever is smaller.
Cultural Resource Management (A02)	1. Protect, find an adaptive use for, or interpret all cultural resources on National Forest System lands (NFS) lands which are listed on or eligible for inclusion in the National Register of Historic Places, as detailed in the forest protection/maintenance and interpretive plans. 2. Nominate or recommend cultural resource sites to the National Register of Historic Places by 1990 in the following priority: A. Sites representing multiple themes, B. Sites representing themes which are not currently on the National Register within the state, or C. Sites representing themes which are currently represented by single sites. 3. Protect and foster public use and enjoyment of cultural resources: A. Complete cultural resource surveys prior to any ground-disturbing project, B. Avoid disturbance of known cultural resources until evaluated and determined not significant, C. Mitigate sites where there is no other way to protect the properties, D. Issue antiquities permits to qualifying academic institutions or other organizations for the study and research of sites.	A. Follow direction in FSM 2360.
Visual Resource Management (A04)	1. Apply the visual management system to all National Forest System (NFS) lands. Travel routes, use areas and water bodies determined to be of primary importance such as Sensitivity Level 1 and appropriate visual quality objectives which are established according to the Visual Management System. 2. Rehabilitate all existing projects and areas which do not meet the adopted visual quality objective(s) (VQO) specified for each management area. Set priorities for rehabilitation, considering the following:	A. Follow direction provided in FSM 2380 and FSH 2309.16 through FSH 2309.25.

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
	A. Relative importance of the area and the amount of deviation from the adopted VQO. Foreground areas have the highest priority, B. Length of time it will take natural processes to reduce the visual impacts so that they meet the adopted VQO, C. Length of time it will take rehabilitation measures to meet the adopted VQO, and D. Benefits to other resource management objectives to accomplish rehabilitation.	
	3. Achieve enhancement of landscapes through addition, subtraction or alteration of elements of the landscape such as vegetation, rockform, water features or structures, examples of these include: A. Addition of vegetation species to introduce unique form, color or texture to existing vegetation. B. Vegetation manipulation to open up vistas or screen out undesirable views.	
	4. Plan, design and locate vegetation manipulation in a scale which retains the color and texture of the characteristic, borrowing directional emphasis of form and line from natural features.	A. Meet the visual quality objectives of retention and partial retention one full growing season after completion of a project. Meet modification and maximum modification objectives three full growing seasons after completion of a project. B. Determine sensitivity levels in accordance with FSH 2309.16, Agriculture Handbook Number 462, Volume 2, Chapter 1, Sensitivity Levels.
	5. Blend soil disturbance into natural topography to achieve a natural appearance, reduce erosion and rehabilitate ground cover.	
	6. Revegetate disturbed soils. In large projects, this may have to be done in stages.	A. Revegetate disturbed soils by the following growing season.
	7. Choose facility and structure design, color of materials, location and orientation to meet the adopted visual quality objective(s) for the management area.	
Recreation Site Construction and Rehabilitation (A05 and 06)	1. Provide appropriate development facilities where the private sector is not meeting the demand.	
	2. Provide for 10 percent of new or rehabilitated facilities to be accessible to handicapped persons.	

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
	3. Facilities proposed for construction or reconstruction which lie within identified 100-year floodplains will be evaluated as to the specific flood hazards and values involved with the site. Practicable alternatives will be thoroughly evaluated.	A. Follow procedures in FSM 2527.04C.
	4. Past and probable flood heights in inventoried 100-year floodplains will be posted to provide visible warnings to the using public about possible periodic flooding of over one foot in depth.	A. Follow procedures in FSM 2527.6.
Management of Developed Recreation Sites (A08, 09, 11 and 13)	1. As need dictates, design, construct and operate developed sites which are adjacent to, or provide an access into, a wilderness to complement wilderness management objectives.	
	2. Construct, reconstruct and maintain developed sites in accordance with the established recreation opportunity spectrum (ROS) classification for the management area.	A. STANDARDS AND GUIDELINES

ROS CLASS*	SITE DEVELOPMENT SCALE**
P	Not to exceed 1
SPNM	Not to exceed 2
SPM	Not to exceed 2
RN	Class 3 or 4
R	Class 3 or 4
U	Class 5

* P = Primitive
SPNM = Semi-Primitive Non-Motorized
SPM = Semi=Primitive Motorized
RN = Roaded Natural
R = Rural
U = Urban

** FSM 2331.47

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
	3. Manage Development Scale 3 and 4 for full service when at least one of the following are met and funding is available to meet them. A. A campground is designated as a fee site; B. More than 20 percent of theoretical capacity is being utilized; C. A group campground or picnic ground has a reservation system and/or user fee; or D. The site is a swimming site, a boating site with a constructed ramp, or a staffed visitor information center.	A. FSH 2331.47
Dispersed Recreation Management (A14 and 15)	1. Provide a broad spectrum of dispersed recreation opportunities in accordance with the established Recreation Opportunity Spectrum (ROS) classification for the management area.	

2. Close or rehabilitate dispersed sites where unacceptable environmental damage is occurring.

A. Close sites that cannot be maintained in Frissel Condition Class 1, 2 or 3 (Campsite Condition, Frissell, S.S, Journal of Forestry, August 1978).

B. Rehabilitate sites that are in Frissel Condition Class 4. Close and rehabilitate sites in Condition Class 5.

3. As needed to prevent deterioration, manage dispersed recreation activities to not exceed the established ROS/PAOT/ACRE capacity. Manage use of trails in dispersed areas to not exceed the established PAOT/MILE of trail guidelines. Manage dispersed areas around developed Campground facilities by those who are unwilling to pay.

A. STANDARDS AND GUIDELINES

RECREATION USE AND CAPACITY RANGE DURING THE SNOW-FREE PERIOD (PAOT/ACRE)

TRAIL USE AND CAPACITY RANGE (PAOT/MILE OF TRAIL):

*USE LEVEL	VERY LOW	LOW	MODERATE	HIGH
ROS CLASS - PRIMITIVE				
ON TRAILS PAOT/MILE	0.5	1.0	2.0	3.0
AREA WIDE PAOT/ACRE	.001	.002	.007	.025
ROS CLASS - SEMI-PRIMITIVE NONMOTORIZED				
ON TRAILS PAOT/MILE	2.0	3.0	9.0	11.0
AREA WIDE PAOT/ACRE	.004	.008	.05	.08
ROS CLASS - SEMI-PRIMITIVE MOTORIZED				
ON TRAILS PAOT/MILE	2.0	3.0	9.0	11.0

AREA WIDE PAOT/ACRE	.004	.008	.05	.08
ROS CLASS - ROADED NATURAL				
ON TRAILS PAOT/MILE	--	--	--	--
AREA WIDE PAOT/ACRE	.04	.08	1.2	2.5
ROS CLASS - RURAL				
ON TRAILS PAOT/MILE	--	--	--	--
AREA WIDE PAOT/ACRE	.5	.8	5.0	7.0

Reduce the above use level coefficients as necessary to reflect usable acres, patterns of use, a general attractiveness of the specific management area type as described in the ROS Users Guide, Chapter 25.

Reduce the above use levels where unacceptable changes to the biophysical resources will occur.

*Very low applies to alpine, low applies to rock, mountain grass and clearcuts 1-20 years old. Moderate applies to mountain, grass, PP Size Class 9, 8 and 7, DF Size Class 9, 8 and 7, aspen Size Class 9, SF Size Class 7, Shelterwood cuts 90-120 years old, selection cuts 1-20 years old and clearcuts 80-120 years old.

High applies to SF Size Class 9 and 8, aspen Size Class 8 and 7 and clearcuts 20-80 years old.

4. Discourage camping within a minimum of 100 feet from lakes and streams unless exceptions are justified by terrain or specific design which protects the riparian and aquatic ecosystems.

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
Recreation Management (Private and Other Public Sector) (A16)	1. Ensure that permitted private and public sector sites on Forest lands which are adjacent to, or provide an access point into, or compliment wilderness management objectives.	
Wilderness Area Management (B02)	1. Do not provide interpretive facilities at cultural resources sites, or restore or enhance cultural resources for recreation purposes. 2. Provide opportunities for human isolation, solitude, self-reliance and challenge while traveling cross-country and on system trails. 3. Utilize a permit system to manage use levels and patterns during the summer use period based upon the following criteria: A. When acceptable use levels, as specified in the individual prescriptions, are exceeding during 20 percent of the summer use season, or B. When acceptable capacities, as specified in the individual prescriptions, in primitive or pristine management areas are exceeded on 10 percent or more of the day during the summer use season. C. Apply a permit system to an entire wilderness, not just impacted portions of a wilderness. 4. Do not impose party-size limits during traditionally light use seasons or during fall hunting seasons unless necessary to prevent unacceptable levels of change to the biological and physical resources. 5. Maximum party-size limit for the summer use period is 25 people and/or recreational stock. Party-size limits less than 25 people and/or recreational stock will be established where biological and physical resource capability cannot support that level of use. Party-sizes established for protection of biological resources will set limits for both people and recreational stock. Parties larger than established limits may be allowed under permit on a case-by-case basis when compatible with other wilderness management objectives. 6. Do not authorize competitive contest events, group demonstrations, ceremonies, and other similar events. 7. Protect spring sources of drinking water near trails from contamination by recreation stock and livestock where culinary sources are scarce or heavily used by recreationists. 8. Prohibit recreational stock along lake shores and streambanks except for watering and through-travel.	

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
	9. Restore soil disturbances caused by human use (past mining, grazing, trail construction and use, camping, etc.) to soil loss tolerance levels commensurate with the natural ecological processes for the treatment area.	
	10. Construct or implement soil and water restoration measures so as to meet the visual quality standard prescribed for the prescription area. Utilize native materials whenever possible to help meet visual quality objectives.	A. Use FSM 2323.4 as guidance.
	11. Control overnight grazing of recreational stock in subalpine ecosystems according to use standards established by range allotment analysis.	A. Base range condition on the standards in Range Analysis Handbook (FSH 2209.21).
	12. Prohibit new range improvement structures other than corrals, fences or water developments essential to sustain current permitted numbers.	
	13. Implement revegetation only for rehabilitation of areas in less than fair range condition based upon their natural potential. Use only native species for revegetation. Implement only where natural vegetation possibilities are poor, and only where degradation was due to human activities.	A. Base range condition on the standards in the Range Analysis Handbook (FSH 2209.21)
	14. Permit fish and wildlife research and management utilizing guidelines adopted by the International Association of Fish and Wildlife Agencies (FSM 2323.3).	
	15. See mining law compliance and administration and minerals management activities in Forest Direction for minerals direction.	
	16. Suppress man-caused wildfires.	
	17. Maintain fire dependent ecosystems using prescribed fires ignited naturally. Reclaims areas disturbed as part of fire control activities to meet the visual quality objective of retention.	
	18. Protect air quality related values from adverse effects from air pollution.	A. See criteria and standards in FSM 2120.
	19. Control natural insect or disease outbreaks in wilderness only when justified by predicted loss of resource values outside of wilderness. Conduct analysis in accordance with FSM 3430.	
	20. Control problem animals on a case-by-case basis in cooperation with other agencies (FSM 2610) using methods directed at the offending animal but which present the least risk to other wildlife, and/or visitors.	

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
Wildlife and Fish Resource Management (C01)	1. Where present, the following species are management indicator species: -Deer, _Elk, and -All federally-listed endangered or threatened plant and animal species that might be affected by management activities.	
	2. In addition to the above, use indicator species that represent the following categories: A. Riparian and/or wetland dependent species (yellow-breasted chat). B. Species dependent on either climax plant communities or one seral stage of a plant community or communities (goshawk, wild turkey). C. Tree cavity-dependent species, (commond flickery). D. Game fish (brook, brown, rainbow, and cutthroat trout). E. Species which have particular scientific, local or national interest, and species needing special management to prevent federal listing as threatened or endangered (Bonneville cutthroat, mule deer, elk).	
	3. Manage habitat for viable populations of all existing vertebrate wildlife species.	
	4. Allow for re-establishment of deer herds to the population levels outlined in the Utah Deer Herd Unit Management Plans	
	5. Cooperate in the establishment of elk, pronghorn, bighorn sheep, or other suitable species, and threatened and endanagered species on sites that can supply the habitat needs of the species and the population levels and distribution agreed to with the State and other concerned parties only where conflict with established uses can be established. (FSM 2610)	
	6. Manage waters capable of supporting self-sustaining trout populations to provide for those populations.	Where natural geologic and biologic conditions will allow, maintain the following stream habitat conditions: A. Maintain 40 percent or more of over-hanging grasses, forbs sedges and shrubs along banks of streams. B. Maintain 50 percent or more of total streambank length in stable condition C. No more than 25 percent of stream substrate should be covered by inorganic sediment less than 3.2mm in size(use R-4 GAWS Aquatic Habitat Surveys Handbook).

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
		D. Maintain overall stream habitat condition at or above 40 percent of optimum (use R-4 GAWS Aquatic Habitat Surveys Handbook).
	7. Manage and provide habitat for recovery of endangered and threatened species.	
Wildlife Habitat Improvement and Maintenance (C02, 04, 05, and 06)	1. Use appropriate silvicultural practices to accomplish wildlife habitat objectives forestwide.	A. In forested areas, where biologic- hiding cover 1/ on 50 percent or more of the perimeter of all natural and created openings along at least 75 percent of the edge of arterial and collector roads 2/ and along at least 50 percent along streams and rivers. In areas of winter and transition ranges at least 20 percent of the cover should qualify as thermal cover. 1/ Big game hiding cover is defined as that needed to hide 90 percent of a standing deer or elk at a distance of at least 200 feet. 2/ Road design speed and vehicle and animal safety need to be considered on a case-by-case basis B. In management areas dominated by non-forested ecosystems, maintain deer and elk hiding cover as follows: % of Unit Forested — % of Forested Area in Cover 35-50 — At least 50% 20-34 — At least 60% Less than 20 — At least 75% These levels may be exceeded temporarily during periods when stands are being regenerated to meet the cover standard, or to correct tree disease, problems, in aspen stands, or where windthrow or wildfire occurred. In critical big game habitat maintain hiding cover along at least 75 percent of the edge of arterial and collector roads, and at least 60% along streams and rivers, where trees occur.

C. Alter age classes of browse stands in a management area, no more than 25 percent within a ten-year period.

2. Improve habitat capability through direct treatments of vegetation, soil, and waters.

3. Where possible, conduct habitat improvement projects jointly or cooperatively funded with the UDWR.

4. Provide maximum wildlife habitat diversity.

A. Where silviculturally practical, maintain edge contrast* of at least medium or high between tree stands created by evenaged management.

A. CONTRAST BY AGE CLASS IS:

AGE CLASS*	CONTRAST**						
	OG	M	P	SSS	GF	SHR	GRA
OG	-	L	M	H	H	M	H
M	L	-	M	M	H	M	H
P	M	M	-	M	H	M	H
SSS	H	M	M	-	L	L	L
GF	H	H	H	L	-	M	L
SHR	M	M	M	L	M	-	M
GRA	H	H	H	L	L	M	-

B. Utilize both even and unevenaged timber management systems and a variety of harvest methods.

5. Plan timber harvest on a drainage by drainage basis.

A. A portion of each drainage should be in each age class. Seven to ten percent should be managed as old growth and no less than 10% should be grassland. The remainder should be more or less evenly distributed in the other age class (20% ± 3% in each).

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* OG = Old Growth
M = Mature
P = Poles
SSS = Shrub-Seedling-Sapling
GF = Grass-Forb
SHR = Shrubland
GRA = Grassland

** H = High Contrast
M = Medium Contrast
L = Low Contrast

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
Wildlife and Fish Cooperation With Other Agencies (C12)	1. Manage animal damage in cooperation with the Utah Division of Wildlife Resources (Utah DWR), the Fish and Wildlife Service and other appropriate agencies, and cooperators to prevent or reduce damage to other resources and direct control toward preventing damage or removing only the offending animals.	
	2. Allow trapping denning or aerial gunning under the following conditions: A. Methods and locations are specified in the Forest Animal Control Plan, B. Aerial gunning is done by an authorized individual.	
Range Resource Management (D07)	1. Provide forage to sustain local dependent livestock industry.	
	2. Remove livestock from allotments for the remainder of the grazing season when proper use is reached.	
	3. Manage livestock and wild herbivores forage use by implementing allowage use guides.	A. Livestock and wild herbivores allowable forage use by grazing system and range type are: 1. Rest Rotation System: A. Use by Range Type: -Mainly seed reproduction (Bunchgrass, grassland, foothills shrub and subalpine range types): Up to 60 percent on heavy use pastures. Up to 50 percent on other use areas. B. Allowable soil disturbance or recovery criteria: Soil and vegetation condition must be restored to at least the pretreatment condition by the return to the same point in the grazing cycle. 2. Deferred Rotation System: A. Use by Range Type: Up to 50 percent on all species except crested wheatgrass reseedings and wet meadows where 60 percent is allowable. B. Allowable soil disturbance or recovery criteria:

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
		Soil and vegetation conditions must be restored to at least the pretreatment condition by the return to the same point in the grazing cycle.
	4. Achieve or maintain satisfactory range conditions on all rangelands.	A. All suitable rangelands currently in "poor" condition, as determined according to FSH 2209.21 (R-4) will be improved to "fair" or better condition by 2030.
	5. Salt blocks shall be placed so as to minimize impact upon riparian ecosystem.	
	6. Control noxious farm weeds in the following priority: A. Musk thistles, Scotch thistle, Canada thistle. B. Invasion of new plant species classified as noxious farm weeds; C. Infestation in new areas; D. Expansion of existing infestations of Scotch, Musk and Canada thistle, and other noxious farm weeds; and E. Reduce acreage of current infestation.	
	7. Protect and manage the North Hills wild horse herd in cooperation with BLM.	A. The wild horse herd will be managed according to Public Law 92-195 and any amendments. B. The wild horse population will be kept within the population and forage utilization limits as outlined in the joint FS/BLM Management Plan for the herd.
Range Improvement and Maintenance (D03, 04, 05 and 06)	1. Structural range improvement should be designed to benefit wildlife and livestock.	A. Structural improvements and maintenance will be in accordance with FSH 2209.22 (R-4) and 2609.11.
	2. To facilitate the control of soil erosion within acceptance tolerance, soil survey or site specific soils data will be used to develop revegetation projects.	
Timber Resource Management Planning and Inventories	1. Identify lands available and suitable for timber production on a sale-by-sale basis.	B. The timber sale I.D. team, will follow the process described in FSM 2412.
Silvicultural Prescriptions (E03, 06 and 07)	1. Provide for wildlife habitat improvement and enhancement of other renewable resources in sale area improvement plans.	A. Stand volume growth data will be collected during stand examination.

B. MANAGEMENT PRESCRIPTION

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
	2. Apply a variety of silviculture systems and harvest methods which best meet resource management objectives.	A. The appropriate harvest methods by forest cover type are:

DESIRED FOREST CHARACTER	HARVEST CUTTING METHODS	
	EVEN-AGE	UNEVEN-AGE
Two-Storied	SW, ST	N/A
Veg. Mosiacs	CC,SW,ST	GS
Old Growth	ST	STS,GS
Closed Canopy	CC,SW,ST	N/A
Continuous Site Occupancy With Trees	SW,ST	AS

HARVEST CUTTING METHODS

COMPETING TYPE	EVEN AGE	UNEVEN AGE
High Elev. Brush	SW	AS
Low Elev. Brush	CC,ST	N/A
Low Elev. Brush	SW	AS
Low Elev. Brush	CC,ST	N/A
Grasses (Warm Site)	SW	AS
Grasses (Cool Site)	SW	GS

COMPETING TYPE	KEY HAB. SERIES	CRITICAL ASPECT
High Elev. Brush	AF	All
Low Elev. Brush		N and E
Low Elev. Brush	DF	S and W with slopes +30%
Low Elev. Brush	DF	S and W with slopes -30%
Grasses (Warm Site)	PP,DF	S and W
Grasses (Cool Site)	DF,AF	All

3. Clearcuts may be applied to dwarf mistletoe infected stands of any forest cover type.

4. Assure that all even-aged stands scheduled to be harvested during the planning period will generally have reached the culmination of mean annual increment of growth.

SW=Shelterwood, ST=Seed-Tree,
CC=Clearcutting
GS=Group Selection, STS=Single-Tree Selection, AS=All Selection

1. The series of habitat types is identified by the climax overstory species associated with a given site. AF represents Subalpine Fir, DF represents Douglas-fir and PP represents Ponderosa Pine.

MANAGEMENT INTENSITY

CLASS OF TIMBER STAND	ACTIVITIES
Existing Sawtimber Stands	Commercial thinning if harvest is delayed 20 years or more and response to treatment can be expected.
Existing Pole-timber, Sapling and Seeding Stands	Appropriate release, weeding, precommercial thinning, and commercial thinning to meet management objectives.
Existing and Future Harvested or Deforested Areas	Appropriate site preparation, planting or seeding, release, weeding, precommercial thinning and commercial thinning to meet management objectives.

D. To facilitate the control of soil erosion within acceptable tolerance soil surveys or site specific soil data will be used to develop project level harvest systems.

5. Minimize soil surface compaction and disturbance by curtailing logging activities during periods of high soil moisture. Design skid trail system to minimize extent of area impacted.

6. The maximum size of openings created by the application of even-aged silviculture will be 40 acres regardless of forest cover type. Exceptions are:

A. Proposals for larger openings are subject to a 60-day public review and are approved by the Regional Forester.
B. Larger openings are the result of natural catastrophic conditions of fire, insect or disease attack, windstorm, or
C. The area does not meet the definition of created openings.

A. SIZE OF OPENINGS

Patch Clearcuts:	1-10 acres
Clearcuts:	10-40 acres

7. Acceptable management intensity activities to determine harvest levels are:

	SUITABLE LAND						UNSUITABLE LAND
MANAGEMENT ACTIVITY*	ENGELMANN SPUCE/SUB-ALPINE FIR	INTERIOR PONDEROSA PINE	INTERIOR DOUGLAS-FIR AND WHITE FIR	ASPEN	OTHER PINES	HARD WOOD	ALL FOREST TYPES
Tree Imp.	X	X	X	N	N	X	O
Site Prep.	X	X	X	N	N	X	O
Reforestation							
Planting	X	X	X	N	N	X	N
Seeding	N	N	N	O	O	N	N
Natural	X	X	X	X	X	O	N
Regeneration Protection	X	X	X	N	N	X	N
Stocking Control (Thinning):							
Precomm.	X	X	X	O	N	N	O
Comm.	X	X	X	O	N	N	O
Salvage of Dead Material	X	X	X	X	N	X	X
Cutting Methods:							
Clearcut	X	X	X	X	N	X	N
Shelterwood	X	X	X	N	N	X	N
Selection	X	X	X	N	X	X	N

*Various combinations of these activities provide the acceptable range of management intensity for timber produciton (36 CFR 291.2(B)2).
X = Appropriate Practice
O = Not an Appropriate Practice
N = Appropriate, but not a Standard Practice.
May be Acceptable Where Justified.

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
	8. Make Christmas trees available in areas where other resource objectives can be accomplished through commercial or personal use Christmas tree sales.	
	9. Examine modifications to silvicultural techniques and harvest practices in the spruce-fir and mixed conifer timber types to increase water yield. Implement changes when not inconsistent with other multiple use management goals.	
Reforestation (E04)	1. Establish a satisfactory stand on cutover areas, emphasizing natural regeneration within five years, where feasible, after final harvest except: A. For permanent openings that serve specific management objectives; B. When other resource objectives dictate a different period, such as spruce-fir clearcuts where planting must occur within three years after harvest; C. When provided for otherwise in specific management prescriptions.	A. Reference FSH 2409.26b - Reforestation Handbook. B. The Silvicultural Prescriptions will be followed on a stand basis.
	2. Do not apply final shelterwood removal cut until the desired number (as specified) of well-established seedling/acre are expected to remain following overwood removal.	
	3. Use trees of the best genetic quality available which are adapted to the planting site. (Reference FSM 2475)	
	4. Where appropriate, use K-V funds for soil and watershed rehabilitation and/or wildlife habitat improvement.	
Riparian Area Management (F03)	1. Special protection and management will be given to land and vegetation for a minimum of 100 feet from the edges of all perennial streams, lakes and other bodies of water or to the outermargin of the riparian ecosystem if wider than 100 feet.	
	2. Design and implement activities in management areas to protect and manage the riparian ecosystem.	
	3. Prescribe livestock grazing systems to achieve riparian objectives.	A. Allow a maximum of 60 percent use (season-long system), of desirable and intermediate species forage production to riparian areas. B. Allow a maximum of 50 percent use of current year's growth on browse species in riparian areas. C. Maintain ground cover of at least 70 percent within riparian areas.

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
	4. Prescribe silvicultural systems to achieve riparian area objectives.	A. Maintain shade, bank stability and sediment standards as specified under Wildlife and Fish Resource Management, Standards and Guidelines. B. Maintain at least 70 percent of the linear distance of all riparian ecosystems in at least an upper mid-seral successional stage.
	5. Locate and construct arterial and collector roads to maintain basic natural condition and character of riparian areas. (0087) A. Locate roads outside of riparian areas except for stream crossing where other feasible alternatives do not exist. B. Select stream crossing points to minimize bank and channel disturbance.	A. Maintain fish passage during all flow levels except peak flow events. Follow Guidelines in Evans and Johnston, 1980.
Water Uses Management (F04)	1. Determine and obtain rights to instream flows needed to protect and maintain stream channel stability and capacity and for other National Forest purposes.	A. Utilize methodology in draft FSH 2509.17, Chapter 30, "Procedure for Quantifying Channel Maintenance Flows".
	2. Protest water right applications of others when such uses will lower streamflows, springflows, lake levels, or groundwater tables below levels acceptable for National Forest uses and purposes. (0602)	
	3. Special use permit, easements, rights-of-way, and similar authorizations for use of NFS lands shall contain conditions and stipulations to maintain instream or bypass flows necessary to fulfill all National Forest uses amd purposes. (0604)	
	4. Determine and obtain rights to instream flow and conservation pools in cooperation with Utah DWR to support a yield of natural fisheries resources.	A. Determine instream flows by R4 GAWS Aquatic Habitat Surveys or other accepted methodology.
Water Resource Improvement and Maintenance (F05 and 06)	1. Maintain needed instream flows and protect public property and resources.	
	2. Improve or maintain water quality to meet State water quality standards. However, where the natural background water pollutants cause degradation, it is not necessary to implement improvement actions. Short-term or temporary failure to meet some parameters of the State standard, such as increased sediment from road crossing construction or water resource development may be permitted in special cases.	

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
	3. Evaluate all management activities within 100 feet of any spring for impacts on springflow, riparian habitat and soil disturbance.	
	4. Rehabilitate disturbed areas that are contributing sediment directly to perennial streams as a result of management acitivities to maintain water quality and re-establish vegetation cover.	A. Reduce to natural rate any erosion due to management activities in the season of disturbance and sediment yields within one year of the activity through necessary mitigation measures such as water barring and revegetation.
	5. Limit use of herbicides, insecticides, rodenticides, or other chemicals which are harmful to either the aquatic ecosystem, desired terrestrial fauna or human health. Use these chemicals only when and where possible transport to surface water has a low probability of occurrence. Follow all label requirements concerning water quality protection.	
Minerals Management (G00)	1. Administer areas with producing sites and known reserves with consideration of ongoing and potential mineral activities.	
	2. Avoid or minimize significant public or private investments in and near areas where mineral activities can be expected in the foreseeable future. This includes consideration for reserved and outstanding rights.	
	3. In designated Wilderness, ensure that provisions in operating plan satisfy the rights of the claimant while creating the least impact on wilderness values and for restoration of disturbed lands as near as practical to their natural condition as soon as possible during and/or after the mining activity.	
	4. Other classified lands not withdrawn from operations under the general mining laws: such lands may include research natural areas, national recreation areas, national recreation trails, special interest areas such as scenic and geologic, national historic sites, or some other special classification: the status of the land must be determined before an operating plan is processed. Provide reasonable protection for the purposes for which the lands were classified and for reasonable reclamation of disturbed lands to a condition suitable for those purposes.	
	5. On unclassified (remaining) lands, provide for reasonable reclamation of disturbed lands to achieve the planned uses specified in the Forest plan, when those lands are no longer needed for mining operations.	

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
Mining Law Compliance and Administration (Locatables)	1. Minimize or, as appropriate, prevent adverse impacts on surface resources. 2. Review cases of suspected abuse of the mining laws such as occupancy of the land for purposes other than prospecting, mining, and related activities. Initiate appropriate action to resolve.	
Minerals Management Leasables	1. Leasing, permitting, or licensing of National Forest System lands will be based on site specific considerations using appropriate standards and guidelines for the management unit concerned. Criteria for these actions should minimize impacts on or conflicts with other resource uses and should return disturbed lands to planned surface resources or uses.	A. All leasable and salable minerals: Activities may be denied or limited where the current uses or activities exceed, or the proposed activities may result in exceeding, the established critical resource(s) or use thresholds.
	A. Forest Service authorization of geophysical exploration will include terms and conditions controlling operating methods and times to prevent or control adverse impacts on surface resources and uses.	B. Oil and gas, geothermal, and CO2 activities may be limited by standard and current Regionally approved special stipulations, which are listed in Appendix C.
	B. Recommendations or consent to BLM for issuance of leases and permits will include all current standard stipulations and the Regionally approved special stipulations that may be necessary for additional protection of specific surface resources and uses. C. Recommend against or deny consent or concurrence to BLM for issuance of leases, permits, or licenses where operational damages on surface resources, including the impacts of surface-based access, product transportation and ancillary facilities necessary to production and related operations, would be irreversible 1/ and irretrievable, 2/ with low potential for reclamation. Negative recommendations or consent denials will be based on site-specific consideration using the appropriate standards and guidelines.	C. Coal and leasable uranium and non-energy minerals activities may be limited where: 1. Terrain does not provide for adequate waste dumps and tailings disposal, leaving them unstable or unreclaimable. 2. Surface-based access, product transportation and ancillary facilities necessary to operations are on slopes steeper than 60 percent with high erosion hazard, or with high geologic hazard. 3. National scenic trails and existing Wilderness' occur. (Mining in these areas is prohibited by the Coal Leasing Amendments Act of 1975. Coal leasing and coal exploration licenses will not be authorized on any of the foregoing described lands, unless mining can occur without conflicting with the purpose for which the area was established.)

1/ Irretrievable. Applies to losses of production, harvest, or commitment of renewable natural resources. For example, some or all of the timber production from an area is irretrievably lost during the time an area is used as a winter sports site. If the use is changed, timber production can be resumed. The production lost is irretrievable, but the action is not irreversible.

2/ Irreversible. Applies primarily to the use of nonrenewable resources, such as minerals or cultural resources, or to those factors that are renewable only over long time spans, such as soil productivity. Irreversible also includes loss of future options.

B. MANAGEMENT PRESCRIPTION

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
Minerals Management Salables	1. Forest Service Authorizes common variety exploration and disposal under terms and conditions to prevent, minimize or mitigate adverse impacts on surface resources and uses. The objective of reclamation requirements will be to return disturbed land to the planned uses.	A. See the standards and guidelines for leasable minerals.
Withdrawals Modifications and Revocations	1. Withdrawals must be for the purpose of protecting specific existing or proposed uses. Initiate action for withdrawal from entry when other applicable laws and regulations will not provide the capability for protection of the surface resources and uses.	A. Withdrawals from entry under the general mining laws will be in conformance with Section 204 of the Federal Land Policy and Management Act of 1976 (P.L. 94-579). Withdrawals under the Minerals Leasing Act will be in exceptional situations because of the discretion allowed in each case for disposal. C. Common variety mineral withdrawals are unnecessary since full authority for disposal is held by the Forest Service.
Special Use Management (Non-Recreation) (J01)	1. Act on Special Use applications according to the following priorities: A. Land and land use activity requests relating to public safety, health and welfare, e.g., highways, powerlines and public service improvements. B. Land and land use activities contributing to increased economic activity associated with National Forest resources, e.g., oil and gas, and energy minerals. c. Land and land use activities that benefit only private users, e.g., road permits, rights-of-way for powerlines, telephones, waterlines, etc. 2. Do not approve any Special Use applications that can be reasonably met on private or other Federal lands unless it is clearly in the public interest. 3. Bury electrical utility lines of 33 KV or less and telephone lines except when: A. Visual quality objectives of the area can be met using an overhead line. B. Burial is not feasible due to geologic hazard or unfavorable geologic conditions. C. It is not economical as determined by a cost analysis. D. Greater long-term site disturbance would result. E. It is not technically feasible. 4. Do not approve Special Use applications for areas adjacent to developed sites unless the proposed use is compatible with the purpose and use of the developed site.	

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
	5. Hydropower. Standards and guidelines for small hydro-projects - Federal Energy Regulatory Commission (FERC). The Forest's ID team will review proposed projects when notices of application for licensing are received from the Federal Energy Regulatory Commission. Management concerns identified by the ID team will be resolved in the environmental assessment before approval of Special-Use Permits. Minimum instream flow needs required by the Forest Service to secure favorable water flows as outlined in the Organic Act and to protect minimum viable populations of trout will be quantified by the Forest Service. In addition to the above items, Forest Service input to the environmental assessment or EIS will include cumulative effects of actions proposed in the Plan and the proposed hydropower project. Forest management area direction contained in Chapter IV will discuss the specific management requirements listed in 36 CFR 219.27 and give direction through the management multiple-use prescriptions for the resource areas listed in 36 CFR 219.13-219.26.	Land use decisions for small hydro-projects will be guided by the above-referenced Forest-wide standards and guidelines in conjunction with other resource uses and values. Therefore, when implementing a Plan: 1. Assess small hydro-project proposals in response to Forest-wide standards and 2. Assess comulative effects in context to both resource tradeoffs and other hydro-project proposals. The Cumulative Effects Study will address instream flow needs required by the Forest Service and impacts on fisheries and other resources. The actual feasibility of this land use for individual projects may occur prior to the completion of the Forest Plan or after a Plan is completed in a coordinated NEPA effort with the FERC, and resulting in a decision at the Washington Office level. 3. NEPA process. An Enviornmental Assessment (EA) or Environmental Impact Statement (EIS) is required for each project proposal. FERC requires the applicant to prepare an environmental report. The Forest Service will provide input into the report to FERC on cumulative effects, resources activities, and other land uses on National Forest Lands. If an EIS is necessary, the FERC will act as lead agency and the Forest Service will be a cooperating agency unless otherwise agreed. The environmental report prepared by the applicant may be used by the Forest Supervisor to complete site-specific EA/EIS for land use occupancy. On exempt licenses (small hydro less than 5 megawatts) the Forest Supervisor is responsible for the preparation of EA/EIS.
Rights-of-Way and Land Adjustments (J02, 13, 15, 16, 17 and 18)	1. Acquire rights-of-way on existing Forest System roads and trails that cross private land. 2. Ensure floodplain and wetland values are approximately equal on both offered and selected tracts in proposed land exchanges or that values are in favor of the United States.	

3. Classify lands or interest in lands for acquisition where lands are valuable for NFS purposes according to the following priorities:

A. In designated wilderness areas and other Congressionally-classified areas.
B. Where lands or rights-of-way are needed to meet resource management goals and objectives.
C. Lands which provide habitat for threatened and endangered species of animals or plants.
D. Lands which include floodplain or wetlands.
E. On lands having historical or cultural resources, outstanding scenic values or critical ecosystems, when these resources are threatened by change of use or when management may be enhanced by public ownership.

4. Classify lands for disposal according to the following priorities:

A. To States, counties, cities, or other Federal agencies when disposal will serve a greater public interest.
B. In small parcels intermingled with mineral or homesteads patents.
C. When suitable for development by the private sector, if development (residential, agricultural, industrial, recreational, etc.) is in the public interest.
D. When critical or unique resource (wetlands, floodplains, essential big game winter range, threatened or endangered species habitat, historical or cultural resources, critical ecosystems, etc.) exist. Effects are mitigated by reserving interests to protect the resource, or by exchange where other critical resources to be acquired are considered to be of equal or greater value.

5. Effect jurisdiction transfers which achieve the following objectives:

A. Reduce duplication of efforts by users and agencies in terms of time, cost, and coordination.
B. Improve or maintain user access to the administering agency.
C. Decrease travel and enhance management.
D. Improve public understanding of applicable laws, regulations, policies, and procedures.
E. Develop more effective and efficient work units.
F. Reduce administrative cost.

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
Property Boundary Location (J06)	1. Locate, mark, and post landlines according to the following priorities: A. Lines needed to meet planned activities, B. Lines needed to protect NFS lands from encroachment and C. All other lines.	
Soil Resource Management (KA1)	1. Maintain soil productivity, minimize man-caused soil erosion, and maintain the integrity of associated ecosystem. A. Use site preparation methods which are designed to keep fertile, friable topsoil essentially intact. B. Give roads and trails special design considerations to prevent resource damage on capability areas containing soils with high shrink-swell capacity. C. Provide adquate road and trail cross drainage to reduce sediment transport energy. D. Revegetate all areas capable of supporting vegetation, disturbed during road construction and/or reconstruction to stabilize the area and reduce soil erosion. E. Prevent livestock and wildlife grazing which reduces the percent of plant cover to less than the amount needed for watershed protection and plant health. F. Place tractor-built firelines on the contour where practical, and avoid use of tractors on highly erodible sites. G. Provide natural channel drainage and establish protective vegetative cover on all new roads or equipment ways, and all existing roads which are being removed from the transportation system. H. Minimize soil compaction by limiting vehicle travel; skidding on snow, frozen or dry soil; or using off-ground logging systems. I. Restore disturbed soil areas caused by human use to soil loss tolerance levels commensurate with the natural ecological processes for the treatment areas.	A. Use the following standards and guidelines unless more site specific requirements are developed during project design. 1. Limit intensive ground disturbing activities on unstable slopes and highly erodible sites. 2. Apply Packer's Guides in designing for cross drain spacing and buffers. 3. Chisel or rip compacted soils. Soils are considered compacted where there is a 15 percent increase in bulk density or 50 percent decrease in macro pore space.
	2. Repair and improve degraded watershed areas through initiation of watershed restoration projects.	A. Eliminate watershed restoration backlog by year 2000. B. Base priority of watershed restoration projects on watershed improvement needs inventory & cost-benefit analysis emphasizing improvement opportunities in wet meadows and riparian areas.
	3. Maintain watershed improvement structures as necessary.	A. Develop a watershed maintenance plan, including inventory and inspection schedules, for all watershed improvement structures.

<table>
<tr><th>B. MANAGEMENT PRESCRIPTION
MANAGEMENT ACTIVITIES</th><th>GENERAL DIRECTION</th><th>STANDARDS AND GUIDELINES</th></tr>
<tr><td></td><td>4. Identify at the project level, upland areas that are immediately adjacent to riparian (prescription 9A) management areas. Adjacent upland areas are those portions of a management area which, when subjected to management activities have a potential for directly affecting the condition of the adjacent riparian management area. The magnitude of effects is dependent upon slope steepness, and the kind, amount, and location of surface and vegetation disturbance within the adjacent upland unit.</td><td>A. The following is a guide to identifying the approximate extent of adjacent upland areas:
<table>
<tr><th>Slope Gradient of Upland Areas Adjacent to Riparian Management Area
% Slope Range</th><th>Upslope Distance from Boundary of Riparian Management Area
Feet</th></tr>
<tr><td>0-20</td><td>100</td></tr>
<tr><td>20-30</td><td>180</td></tr>
<tr><td>30-40</td><td>280</td></tr>
<tr><td>40-50</td><td>400</td></tr>
<tr><td>50-60</td><td>520</td></tr>
<tr><td>60-70</td><td>640</td></tr>
<tr><td>70-80</td><td>760</td></tr>
<tr><td>80-90</td><td>880</td></tr>
<tr><td>90-100</td><td>1000</td></tr>
<tr><td>100-150</td><td>1000-1300</td></tr>
</table>
B. Reduce, through designed management practices and appropriate erosion mitigation and vegetation/restoration measures, the project caused on-site erosion rates (calculated with appropriate universal soil loss equation methodology) by 75% within the 1st year after disturbance. Reduce project caused on-site erosion by 95 percent within five years after initial disturbance.

C. Design continuing mitigation/restoration practices and follow-up maintenance activities to ensure that 80 percent original ground cover (vegetation) recovery occurs within five years after disturbance.</td></tr>
<tr><td>Transportation System Management
(L01 and 20)</td><td>1. Classify areas as to whether off-road vehicle use is permitted.</td><td>A. Specify off-road vehicle restrictions based on ORV use management.</td></tr>
<tr><td></td><td>2. Manage road use by seasonal closure if:
A. Use causes unacceptable damage to soil and water resources due to weather or seasonal conditions.</td><td></td></tr>
</table>

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
	B. Use conflicts with the ROS class established for the area. C. Use causes unacceptable wildlife conflict or habitat conditions. D. Use results in unsafe conditions due to weather conditions. E. They serve a seasonal public or administration need. F. Area accessed has seasonal need for protection or nonuse, or G. Use causes unacceptable damage to road due to weather or seasonal H. Use degrades the hurting experience. conditions.	
	3. Keep all existing, and newly constructed, roads open to public motorized use unless: A. Financing is not available to maintain the facility or manage the associated use of adjacent resources; B. Use causes unacceptable damage to soil and water resources; C. Use conflicts with the ROS class established for the area D. They are located in areas closed to motorized use and are not designated routes in the Forest travel management direction; E. Use results in unsafe conditions unrelated to weather conditions; F. There is little or no public need for them; or G. Use conflicts with wildlife management objectives.	1. Road densities should not exceed 2 miles per square mile of wildlife habitat. The higher the road density, the more wildlife habitat effectiveness is decreased.
	4. Closed or restricted roads may be used for and to accomplish administrative purposes when: A. Prescribed in management area direction statements; B. Authorized by the Forest Supervisor; and C. In case of emergency.	
	5. Avoid, where possible, locating roads on geologic contact zones (e.g. Wasatch-Kaiparowits Contact, Carmel-Navajo Sandstone Contact, etc.). If roads must be located in these zones, road cuts should be kept to a minimum height, roads should follow the slope countour, road width should be kept to a minimum and fill should be used to cross highly susceptible mass movement areas rather than cutting into the slopes.	
Arterial and Collector Road Construction and Reconstruction (L02 thru L09, L16 thru L18)	1. Construct and reconstruct arterial and collector roads to meet multiple resource needs.	A. Construction and reconstruction standards for arterial and collector roads are:

STANDARD	ARTERIAL	COLLECTOR
TRAVEL SPEED	AVERAGE 30-35 MPH	AVERAGE 10-30 MPH
Lanes	Generally 2 lanes	Generally 1 lane
Surface	All weather generally asphalt or gravel	Generally gravel or native surfacing, sometimes asphalt

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES		
		Width	Typically 24 to 28 feet, but some single lane with intervisible 10 foot turnouts	Typically 14 feet, with intervisible 10 foot turnouts
		Drainage	Permanent, not to impede traffic	Permanent, but may impede traffic
Local Road Construction and Reconstruction (L11, 12 and 13)	1. Construct and reconstruct local roads to provide access for specific resource activities such as campgrounds, trailheads, timber sales, range allotments, mineral leases, etc., with the minimum amount of earthwork.	A. Construction and reconstruction standards for local roads are:		
		TRAVEL SPEED	AVERAGE LESS THAN 5-15 MPH	
		Lanes	Usually single lane, except for developed recreation sites.	
		Surface	Varies from asphalt to native surface, majority are native surface.	
		Width	Typically 14 feet Tunouts optional, depending upon traffic management, usually intervisible.	
		Drainage	Dips and culverts	
Road Maintenance (L19)	1. Maintain all roads to the following minimum requirements: A. All arterial and open collectors - Level 3 and above, B. All open local roads - Level 2 and above, and C. All closed roads - Level 1.	A. Levels of maintenance: Level 1. Basic custodial maintenance is performed to protect the road investment and to keep damage to adjacent resources to an acceptable level. Drainage facilities and runoff patterns are maintained while being maintained at Level 1, roads are closed or blocked to traffic. Level 2. Roads in this maintenance level are normally characterized as single lane, primitive type facilities intended for use by high clearance vehicles. Passenger car traffic is not a consideration.		

B. MANAGEMENT PRESCRIPTION

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
		Level 3. Roads at this maintenance level are normally characterized as low speed, single lane with turnouts and spot surfacing. Some roads may be fully surfaced with either native or processed material. The functional classification of these roads is normally local or minor collector. Level 4. This level is assigned where management direction requires the road to provide a moderate degree of user comfort and convenience at moderate travel speeds. Traffic volumes are normally sufficient to require a double lane aggregate surfaced road. Some roads may be single lane and some may be paved and/or dust abated. The functional classification of these roads is normally collector or minor arterial. Level 5. This level is assigned where management direction requires the road to provide a high degree of user comfort and convenience. These roads are normally double lane, paved facilities. Some may be aggregate surfaced and dust abated. Functional classification of these roads is normally arterial.
	2. Maintain structures, bridges, cattleguards, etc., to be structurally sound and safe for use.	
Trail System Management (L23)	1. Maintain all trails travel unless specifically closed to either or both class of user.	
	2. Maintain all trails in accordance with the standards in the Trail Handbook (FSH 7709.12).	
Trail Construction and Reconstruction (L22)	1. Construct or reconstruct trails when needed as part of the transportation system.	A. Cross drains and conveyance structures are planned according to Forest design standards.
Dam Administration and Maintenance (L28)	1. Design impoundments to conform to visual quality objectives established for the project.	

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
	2. Provide opportunities for dispersed and developed recreation adjacent to the impoundment site that are commensurate with land and water capabilities and the multiple use goals for the project.	
	3. Require new impoundment projects to provide recreation facilities in one of two ways: A. Proponent will provide facilities meeting Forest Service standards and requirements. B. Forest Service will construct facilities at expense of proponent.	
	4. Allow hunting and fishing subject to State laws and regulations.	
	5. Design impoundments so that a lake fishery is created or enhanced.	
	6. Provide the instream flows and conservation pools necessary to maintain fisheries and wildlife habitat. Provide mitigation or compensation measures as determined in cooperation with the Utah DWR and the U.S. Fish and Wildlife Service.	
	7. Encourage riparian habitat by establishing vegetation on potential areas around the periphery of the impoundment.	
	8. Resolve conflicts between livestock use and recreation/water quality/wildlife in favor of the latter.	
	9. Clear merchantable and unmerchantable trees and shrubs to a line two feet above the high water line when this vegetation will later substantially interfere with water level regulation, recreation use or public safety.	A. Base tree removal on an evaluation of: clearing costs, wildlife habitat, fire danger, site esthetics, public safety and utlization for recreation, dam spillway capacity and plugging problems and maintenance (FSM 7531.4) B. Clear the entire pool area if the brush remaining creates greater use, maintenance, user safety and dam safety costs than clearing costs.
	10. Coordinate design, water rights, diversions, etc., with State laws and regulations.	
	11. Revegetate areas of exposed soils.	

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
Fire Planning and Suppression (P01)	1. Plan and provide a level of protection from wildfire that will meet management objectives for the area, considering the following: A. The values of the resources that are threatened by fire, B. The probability of fire occurrence, C. The fuelbed that fires will probably occur in, D. The weather conditions that will probably influence fires that occur, E. The costs of fire protection programs (FFP and FFF), F. The social, economic, political, cultural, environmental, life and property concerns, and G. Management objectives for the area. Use the National Fire Management Analysis Process (NFMAS).	
Escaped Fire Suppression (P09)	1. Take suppression action on all escaped fires considering the following: A. The values of the resources threatened by the fire (both positive and negative), B. Management objectives for the threatened area(s), C. The fuelbeds the fire may burn in, D. The current and projected weather conditions that will influence fire behavior, E. Natural barriers and fuel breaks, F. Social, economic, political, cultural, and environmental concerns, G. Public safety, H. Firefighter safety, and I. Costs of alternative suppression strategies. Use the Escaped Fire Situation Analysis (EFSA) to make this determination.	
Fuel Treatment (P11 thru 14)	1. Maintain fuel conditions which permit fire suppression forces to meet fire protection objectives for the area.	A. Reduce or otherwise treat all fuels so the potential fireline intensity of an area will not exceed 400 BTU's/sec/ft (B.I.-68) on 90 percent of the days during the regular fire season, OR Break up continuous fuel concentrations exceeding the above standard into manageable units with fuel breaks or fire lanes, OR Provide additional protection for areas exceeding the above standards when such protection will not be required for more than five years.

B. MANAGEMENT PRESCRIPTION MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS AND GUIDELINES
Vegetation Treated by Burning (P15)	1. Use prescribed fire to accomplish resource management objectives, such as reducing fuel load buildup, wildlife habitat improvement, etc.	A. Prescribed burning on National Forest System lands will be planned in accordance with existing direction and Forest direction must be consistent with Federal and State laws.
	2. Limit use of prescribed fire on areas in or adjacent to riparian areas to protect riparian and acquatic values.	
Air Resource Management (P16)	1. Comply with State and Federal Air Quality Standards. (FSM 2120 and 5180)	
Insect and Disease Management/Suppression (P35)	1. Prevent or suppress epidemic insect and disease populations that threaten forest stands with an integrated pest management (IPM) approach consistent with resource management objectives.	

F. MANAGEMENT AREA STANDARDS AND GUIDELINES

This section describes the 20 Management Areas on the Forest, and the management direction, and standards and guidelines that apply to each area. The standards and guidelines which apply universally to all management areas are discussed earlier in the Chapter. The proposed and probable management practices which list, by resource, specific projects to be accomplished in each Management Area are shown Chapter VII, Appendix B.

The Forest was divided into Management Areas to facilitate implementation of the Forest Plan. Each Management Area is composed of lands to which the management prescription will apply.

The Forest Plan map displays the location(s) of the Management Areas using a number and letter code that identifies the prescription.

The Management Areas, listed by code number, name, acres, and page number follow:

Area Number	Name	Page
1A	Developed Recreation	IV-57
1B	Winter Sports Sites	IV-60
2A	Semi Primitive Recreation	IV-63
2B	Roaded Natural Recreation	IV-68
4A	Fish & Aquatic Habitat	IV-73
4B	Wildlife Habitat-Mis. Species	IV-82
4C	Wildlife Habitat-Brushy Range	IV-88
4D	Aspen Mgt. for Wildlife	IV-93
5A	Big Game Winter Range	IV-97
5B	Big Game Winter Range	IV-102
6A	Livestock Grazing	IV-109
7A	Wood Prod. & Utilization	IV-114
8A	Wilderness	IV-121
8A1	Antone Bench Exclusion	IV-126
8A2	Other Box Death Hollow Exclosure	IV-131
9A	Riparian Management	IV-135
9B	Riparian Management Int.	IV-144
10A	Research Natual Area	IV-153
10B	Municipal Watersheds	IV-156

MANAGEMENT AREA 1A
DEVELOPED RECREATION

Characteristics

This management area consists of both existing and proposed developed recreation sites.

Desired Future Condition

Developed facilities will be adequate to protect the site and provide comfort for the user. Improvements will be designed to harmonize with the environment and to minimize maintenance costs. Traffic controls will be inconspicuous unless stricter control is needed. Roads will be hard surfaced in high use areas where it is necessary to protect the resource. Development density will average 3 family units per acre. Interpretive services will be informal but generally direct. Vegetation will be managed to perpetuate the desired cover type. Vegetation will provide screening between units and shade from the hot afternoon sun. New sites will be constructed to a development scale three or less

Size

This management area contains a total area of 19,400 acres, including 1265 acres of developed sites. Sixteen thousand eight hundred seventy one acres are unsuitable for timber harvest.

Management Area Direction

Management emphasis is for developed recreation in existing and proposed campgrounds, picnic grounds, trailheads, visitor information centers, summer home groups, and water-based support facilities. Proposed sites (sites scheduled for development in the plan) are managed to maintain the site attractiveness until they are developed.

Facilities such as roads, trails, toilets, signs, etc., may be dominant, but harmonize and blend with the natural setting. Livestock grazing is generally excluded from developed sites. Existing and proposed sites are withdrawn from locatable mineral entry.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION	STANDARDS AND GUIDELINES
MANAGEMENT PRESCRIPTION 01A - EXISTING AND PROPOSED DEVELOPED RECREATION SITES		
Visual Resource Management (A04)	1. Emphasize visually appealing landscapes (vista openings, rock outcroppings, diversity of vegetation, etc.)	A. Do not go below an adopted VIS Quality Objective (VQO) of: -Partial retention in development level 2 sites. -Modification in development level 3, 4 and 5 sites. B. Sensitivity Level: Development level 3, 4 and 5 sites are sensitivity level one. C. Apply rehabilitation practices where the above objectives are not currently being met.
	2. Facilities may dominate, but will harmonize and blend with the natural foreground and middleground landscape.	
Recreation Site Construction and Rehabilitation (A05 and 06)	1. Design facilities and access to provide site protection, efficient maintenance, and user convenience. Design developed sites to ensure that capacity is not exceeded except during heavily used weekends and holidays.	A. Construct and reconstruct existing and new developed sites in accordance with the guideline in FSM 2331.
	2. Provide at least 10 percent of the units in level 3 and 4 camp and picnic sites to accommodate two or more family groups.	
Management of Developed Recreation Sites (A08, 09, 11 and 13)	1. Maintain all developed sites in accordance with Regional acceptable work standards (FSM 1310)	
	2. Maintain facilities in a safe condition. Replace facilities when rehabilitation costs 50 percent or more of replacement costs or when existing facilities are no longer compatible with site design or ROS classification.	A. See FSH 2309.11, section 122.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (01A)	STANDARDS AND GUIDELINES
Range Resource Management (D07)	1. Manage livestock grazing to enhance recreation opportunities in existing and proposed recreation sites.	A. Construct fences of material other than barbed wire around developed sites.
	2. Exclude grazing of recreational stock and livestock in developed recreation sites.	A. Maintain vegetation in fair or better range condition.
Silvicultural Prescriptions (E03, 06,and 07)	1. Manage tree stands to enhance visual quality and recreation opportunities on existing and proposed recreation sites.1	
	2. Remove unsafe or dead trees in developed sites. Plant new trees to provide desired tree cover.	
Mineral Management Oil, Gas and Geothermal	1. Review and process mineral lease applications, permits, and licenses in a timely fashion, recommending to Bureau of Land Management measures and stipulations necessary to protect surface resources.	A. Include applicable no surface occupancy special stipulations (See Appendix C)
Water Resource Improvement and Maintenance	1. Within reparian areas apply management direction in reparian acre prescription except as amended by the direction in this prescription.	A. Use "Chapter 6 of State of Utah Public Drinking Water Regulations as a guide. B. Consider mineral entry withdrawls or restrictive lease stipulations to protect quantity and quality of water supplies.
	2. Provide for special protection zone within 1500 feet up gradient and 100 feet down gradient of spring sources of water supplies.	

MANAGEMENT AREA 1B
WINTER SPORTS SITES

Characteristics

This management area occurs in the Brian Head-Crystal Mountain area on the Cedar City Ranger District.

Desired Future Condition

Any ski area development on the Forest will remain in the Brian Head-Crystal Mountain area. All expansion in this area will be according to an approved master plan. Runs and lift lines will be blended into the existing environment through vegetation management and the use of existing openings. Buildings and structures on the Forest will be designed to duplicate features that exist naturally. Colors used on man-made structures will meet the safety requirements of a ski area and match colors found in the characteristic landscape.

Size

This management area contains 3800 acres. Three thousand forty acres are unsuitable for timber harvest.

Management Area Direction

Management emphasis provides for downhill skiing on existing sites and maintains selected inventoried sites for future downhill skiing recreation opportunities. Management integrates ski area development and use with other resource management to provide healthy tree stands, vegetative diversity, forage production for wildlife and lifestock, and opportunities for nonmotorized recreation.

Visual resources are managed so that the character is one of forested areas interspersed with openings of varying widths and shapes. Facilities may dominate, but harmonize and blend with the natural setting. Harvest methods in forested areas between ski runs is clearcutting in aspen, shelterwood in ponderosa pine and mixed conifers, and group selection in Engelmann spruce-subalpine fir, or as specified in the permittee's site-specific development plan.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (01B)	STANDARDS AND GUIDELINES
MANAGEMENT PRESCRIPTION 01B - EXISTING AND PROPOSED WINTER SPORTS SITES		
Visual Resource Management (A04)	1. Emphasize visually appealing landscapes (vista openings, rock outcroppings, diversity of vegetation, etc.)	A. Do not go below an adopted Visual Quality Objective (VQO) of modification B. Apply rehabilitation practices where the above objectives are not currently being met.
Recreation Site Construction and Rehabilitation (A05 and 06)	1. Design and locate improvements on winter sport sites to provide safety to users and to harmonize with the natural environment.	A. Follow construction, reconstruction standards specified in the approved master development plan.
Management of Developed Recreation Sites (A08, 09, 11 and 13)	1. Provide opportunities for year-round recreation use of the permitted area and facilities.	
Range Resource Management (D07)	1. Manage livestock grazing to enhance recreation opportunities in existing and proposed recreation sites.	A. Maintain vegetation in fair or better range condition.
Silvicultural Prescriptions (E03, 06 and 07)	1. Manage forest cover types on the permitted area to enhance visual quality, diversity, and recreation opportunities and to provide for a healthy forest cover in existing and proposed winter sports sites. Specific timber management prescription to be determined by certified silviculturist.	
	2. Limit timber harvest activities to periods of low recreation use activity or to coincide with ski area construction activity.	
	3. Encourage utilization of firewood and other Forest products.	
	4. The combined water yield effects of type conversion on ski runs and increased on-site water from stand regeneration must be determined. Do not exceed threshold limits of water quality and drainage system stability.	
	6. For management purposes of forested areas between ski trails or other openings, a cut-over area is considered an opening until such time as: -Forage and/or browse production drops below 40 percent of potential production; -Deer and elk hiding cover reaches 60 percent of potential;	A. When the visual quality objective of an area is modification or maximum modification the regenerated stand shall meet or exceed all of the following characteristics before a cutover area is no longer considered an opening:

<table>
<tr><th>PRACTICES/MIH CODE</th><th>MANAGEMENT DIRECTION (01B)</th><th>STANDARDS AND GUIDELINES</th></tr>
<tr><td></td><td>-Minimum stocking standards specified in the silvicultural prescription are met; and
-The area appears as a young forest rather than a restocked opening, and takes on the appearance of the adjoining characteristic landscape.</td><td>
<table>
<tr><th>FOREST COVER TYPE</th><th>MINIMUM STOCKING LEVEL (TREES/ACRE)</th><th>TREE STAND HEIGHT (FEET) 1/</th></tr>
<tr><td>Ponderosa Pine</td><td>150 2/</td><td>6</td></tr>
<tr><td>Mixed Conifers</td><td>150 2/</td><td>6</td></tr>
<tr><td>Engelmann Spruce-Subalpine Fir</td><td>150 2/</td><td>6</td></tr>
<tr><td>Aspen</td><td>300</td><td>6</td></tr>
</table>
<table>
<tr><th>FOREST COVER TYPE</th><th>CROWN CLOSURE (PERCENT)</th><th>DISTRIBUTION 3/</th></tr>
<tr><td>Ponderosa Pine</td><td>30</td><td>60%</td></tr>
<tr><td>Mixed Conifers</td><td>30</td><td>60%</td></tr>
<tr><td>Engelmann Spruce-Subalpine Fir</td><td>30</td><td>60%</td></tr>
<tr><td>Aspen</td><td>30</td><td>75%</td></tr>
</table>
1/ Applies to trees specified at minimum stocking level
2/ Or as otherwise specified in the Silvicultural Prescription
3/ Percent of plots or transects that are stocked.</td></tr>
<tr><td>Local Road Construction and Reconstruction (L11, 12 and 13)</td><td>1. Design and locate local roads in the permitted area.
A. To facilitate management of tree stands and wildlife as well as recreation; and
B. With the minimum of mileage and earthwork.</td><td></td></tr>
<tr><td>Mineral Management Oil, Gas, and Geothermal</td><td>1. Review and process mineral lease applications, permits, and licences in a timely fashion recommending to Bureau of Land Mgt. measures and stipulations necessary to protect surface resources.</td><td>A. Include applicable no surface occupancy special stipulations. (See Appendix C)</td></tr>
</table>

MANAGEMENT AREA 2A
SEMIPRIMITIVE RECREATION

Characteristics

The Recreation Opportunity Spectrum Semi Primitive management setting provides a special kind of outdoor experience, one dependent upon a perception of remoteness. In some cases, it also provides Forest managers with opportunities for active management, including habitat improvement, timber harvest, and travel coordinated management prescriptions can be developed. The term semi primitive refers to a management objective and not to a land classification.

Desired Future Condition

This area will provide the user with a moderate to high probability to experience isolation from the sights and sounds of human, independence, closeness to nature, tranquility and self-reliance through the application of woodsman and outdoor skills in an environment that offers challenge and risk. This opportunity exists for users to have a high degree of interaction with the natural environment.

Size

This management area contains 222,300 acres. Two hundred five thousand eight hundred five acres are unsuitable for timber harvest.

Management Area Direction

Management emphasis is for semi-primitive recreation opportunities. Motorized travel may be restricted or seasonally prohibited to designated routes to protect physical and biological resources and to meet management objectives.

Visual resources are managed so that management activities are not evident or remain visually subordinate. Past management activities such as historical changes caused by early mining, logging, and ranching may be present which are not visually subordinate, but appear to have evolved to their present state through natural processes. Landscape rehabilitation is used to restore landscapes to a desirable visual quality. Enhancement aimed at increasing positive elements of the landscape to improve visual variety is also used.

Livestock distribution and stocking rates are managed to be compatible with recreation use. The timber resource is managed using both commercial and noncommercial methods. Silvicultural prescriptions should be designed to maintain a visual quality objective of partial retention, enhance long term visual quality, diversity, and provide for insect and disease control.

Mineral and energy resources activities are generally compatible with goals of this management area subject to appropriate stipulations provided in management activities G00 - G07 in Forest direction.

Local roads may be constructed for non-recreation purposes to a minimal standard compatible with a primitive environment and located so they will not detract from the objective. Once the activity is completed, the traffic will be controlled to whatever degree necessary to maintain the desired forest setting. This will continue until the road is again needed for more intensive management purposes.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION	STANDARDS AND GUIDELINES
MANAGEMENT PRESCRIPTION 2A - SEMI-PRIMITIVE RECREATIONAL OPPORTUNITIES		
Visual Resource Management (A04)	1. Design and implement management activities to provide a visually appealing landscape. Enhance or provide more viewing opportunities and increase vegetation diversity in selected areas.	A. Do not go below an adopted Visual Quality Objective (VQO) of partial retention. B. FS system travel routes will be mapped according to sensitivity levels and will be managed accordingly. C. Apply rehabilitation practices where the above objectives are not currently being met. D. Manage visual resources using the above standards in accordance with FSM 2380 and FSH 2309.16 through FSH 2309.25.
Dispersed Recreation Management (A14 and 15)	1. Emphasize semi-primitive recreation opportunities. Specific land areas or travel routes may be closed seasonally or year-round for compatibility with adjacent area management, to prevent resource damage, for economic reasons, to prevent conflicts of use, and for user safety. The semi primitive management setting provides a special kind of outdoor experience, one dependent on a perception of remoteness.	A. Specify off road vehicle restrictions based on ORV use management (FSM 2355).
	2. Manage use to allow low to moderate contact with other groups and individuals.	A. Maximum use and capacity levels are: -Trail and camp encounters during peak use days are less than 30 other parties per day. -Trail and area-wide use capacities

ROS CLASS - SEMI-PRIMITIVE-MOTORIZED

USE LEVEL	VERY LOW	LOW	MODERATE	HIGH
On Trails PAOT/Mile	2.0	3.0	9.0	11.0
Area-Wide PAOT/Acre	.004	.008	.05	.08

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (2A)	STANDARDS AND GUIDELINES
		Reduce the above use level co-efficients as necessary to reflect usable acres, patterns of use, and general attractiveness of the specific management area type as described in the ROS Users Guide, Chapter 25. Reduce the above use levels where unacceptable changes to the biophysical resources will occur.
	3. Prohibit motorized vehicle use off Forest System roads and trails (except snowmobiles operating on snow) in subalpine and other ecosystems, where needed to protect soils, vegetation, or special wildlife habitat.	
	4. Permit undesignated sites in Frissell Condition Class I through 3 where unrestricted camping is permitted.	A. Campsite condition class based upon Frissell, SS., Journal of Forestry, May 1978.
	5. Manage site use and occupancy to maintain sites within Frissell Condition Class 3 except for designated sites which may be Class 4. Close and restore Class 5 sites.	
	6. Facilities provided include Development Level 1 and 2 campgrounds. Trails suitable for motorized trailbike use, local roads with primitive surface and parking lots at trailheads where compatible with management objectives. Provide signing compatible with intended use.	A. See FSM 2331, FSM 7732, FSH 7709.12 (Trails Handbook), FSH 7109.11A and 11B (Sign Handbook).
Mineral Management Oil, Gas and Geothermal	1. Review and process mineral lease applications, permits and licenses in a timely fashion recommending to Bureau of Land Management measures and stipulations necessary to protect surface resources.	A. Include applicable special stipulations. (See Appendix C.)
Recreation Management (Private and Other Public Sector) (A16)	1. Encourage development of private sector recreation oriented support services.	
Range Resource Management (D07)	1. Manage livestock distribution and stocking rates to be compatible with recreation use. Locate structural improvements to meet Visual Quality Objectives.	
Silvicultural Prescriptions (E03, 06 and 07)	1. Manage tree stands using both commercial or noncommercial methods. Enhance visual quality, diversity and provide for insect and disease management.	
	2. Manage forest cover types using the following harvest methods: -Clearcut in aspen -Shelterwood in ponderosa pine, mixed conifer and Engelmann spruce-subalpine fir	

PRACTICES/MIH CODE | MANAGEMENT DIRECTION (2A) | STANDARDS AND GUIDELINES

-Selection/group selection in any forest type except aspen
-Clearcut (patch) in dwarf mistletoe infected Douglas-fir and ponderosa pine.

3. Apply intermediate treatments to maintain growing stock level standards as specified in the silvicultural prescription.

4. Utilize firewood material using both commercial and noncommercial methods where compatible with management objectives.

5. For management purposes, a cut-over area is considered an opening until such time as:
-Forage and/or browse production drops below 40 percent of potential production,
-Deer and elk hiding cover reaches 60 percent of potential
-Minimum stocking standards by forest cover type and site productivity are met; and
-The area appears as a young forest rather than a restocked opening, and takes on the appearance of the adjoining characteristic landscape.

A. When the Visual Quality Objective of an area is partial retention. The regenerated stand shall meet or exceed all of the following characteristics before a cut-over area is no longer considered an opening:

FOREST COVER TYPE	MINIMUM STOCKING LEVEL (TREES/ACRE)	TREE STAND HEIGHT (FEET) 1/
Ponderosa Pine	150 2/	15
Mixed Conifers	150 2/	15
Engelmann Spruce-Subalpine Fir	150 2/	15
Aspen	300	15

FOREST COVER TYPE	CROWN CLOSURE (PERCENT)	DISTRIBUTION 3/
Ponderosa Pine	30	60%
Mixed Conifers	30	60%

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (2A)	STANDARDS AND GUIDELINES
		Engelmann Spruce-Subalpine Fir 30 60% Aspen 30 75% 1/ Applies to trees specified at minimum stocking level 2/ Or as otherwise specified in the Silvicultural Prescription 3/ Percent of plots or transects that are stocked.
Special Use Management (Non-Recreation) (J01)	1. Permit special uses which are complimentary and compatible with the objectives of the management area . 2. Permit special uses which are complementary and compatible with the kind and development level of the associated Forest area.	A. Reference the ROS users guide.
Local Road Construction	1. Local roads may be constructed for non-recreation purposes to a minimal standard compatible with a primitive environment and located so they will not detract from the objective. Once the activity is completed, the traffic will be controlled to whatever degree necessary to maintain the desired forest setting. This will continue until the road is again needed for more intensive management purpose. Maintain local roads to level 2 during periods when access for resource utilization is not required.	
FA&O Construction Reconstruction and Maintenance (L24 and 25)	1. Use of FA&O facilities will be limited to minimal shelter type structures. 2. FA&O facilities will be constructed/reconstructed and maintained according to resource needs.	
Transportation System Management (L01 and 02)	1. Roads will be designed and located to be compatible with a primitive setting.	

MANAGEMENT AREA 2B
ROADED NATURAL RECREATION

Characteristics

This management area consists of travel corridors along major traveled routes across the Forest or to specific recreational attractions on the Forest.

Desired Future Condition

This area is characterized by a modified natural environment. Resource modification and utilization practices usually harmonize with the natural environment. In some of the more modified zones within this area utilization practices enhance recreation activities, maintain vegetative cover, and soil. The opportunity to have a high degree of interaction with the natural environment and to face challenges associated with more primitive forms of recreation will not be important. Both motorized and non-motorized forms of recreation are possible in this area. The natural features of the landscape will dominate.

Size

This management area contains 131,700 acres. One hundred twenty four thousand two hundred seventy eight acres are unsuitable for timber harvest.

Management Area Direction

Management emphasis is for rural and roaded-natural recreation opportunities. Motorized and nonmotorized recreation activities such as driving for pleasure, viewing scenery, picnicking, fishing, snowmobiling, and cross-country skiing are possible. Conventional use of highway-type vehicles is provided for in design and construction of facilities. Motorized travel may be prohibited or restricted to designated routes, to protect physical and biological resources.

Visual resources are managed so that management activities maintain or improve the quality of recreation opportunities. Management activities are not evident, remain visually subordinate, or may be dominant, but harmonize and blend with the natural setting. Landscape rehabilitation is used to restore landscapes to a desirable visual quality. Enhancement aimed at increasing positive elements of the landscape to improve visual variety is also used.

The harvest method by Forest cover type is clearcutting in aspen, shelterwood in ponderosa pine, mixed conifer and Englemann spruce-subalpine fir.

MANAGEMENT PRESCRIPTION 2B - EMPHASIZE RURAL AND ROADED NATURAL RECREATIONAL OPPORTUNITIES

PRACTICES/MIH CODE	MANAGEMENT DIRECTION	STANDARDS AND GUIDELINES
Visual Resource Management (A04)	1. Design and implement management activities to provide a visually appealing landscape. Enhance or provide more viewing opportunities and increase vegetation diversity in selected areas.	A. Do not go below an adopted Visual Quality Objective (VQO) of partial retention. B. Maintain or establish a minimum of 30 percent of the forested area within a unit to provide horizontal diversity.
Dispersed Recreation Management (A14 and 15)	1. Provide roaded natural or rural recreation opportunities along Forest arterial, collector and local roads which are open to public motorized travel. Manage recreation use to provide moderate to high incidence of contact with other groups and individuals. Where arterial, collector or local roads or areas are closed to public motorized recreation travel, provide for dispersed non-motorized recreation with a moderate to high incidence of contact with other groups and individuals in a roaded natural or rural setting.	A. Maximum use and capacity levels are: -Trail and camp encounters during peak use day may exceed 30 other parties per day. -Trail and area-wide use capacities:

ROS CLASS - ROADED NATURAL				
USE LEVEL	VERY LOW	LOW	MOD.	HIGH
On Trails PAOT/Mile	--	--	--	--
Area-Wide PAOT/Acre	.04	.08	1.2	2.5
ROS CLASS - RURAL				
On Trails PAOT/Mile	--	--	--	--
Area-Wide PAOT/Acre	.5	.8	5.0	7.5

Reduce the above use level co-efficients as necessary to reflect usable acres, patterns of use, and general attractiveness of the specific management area type as described in the ROS User's Guide, Chapter 25.

Reduce the above use levels where unacceptable changes to the biophysical resources will occur.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (2B)	STANDARDS AND GUIDELINES
		B. Manage local roads for public use. Designate routes and areas which can be periodically closed: -Gathering firewood. -Operating oversnow vehicles.
	2. Permit undesignated sites in Frissell Condition Class 1 through 3 where unrestricted camping is permitted.	
	3. Manage site use and occupancy to maintain sites within Frissell Condition Class 3 except for designated sites which may be Class 4. Close and restore Class 5 sites.	
	4. Facilities provided include development level 1 and 2 campgrounds, trails suitable for motorized trailbike use, local roads with primitive surface and parking lots at trailheads. Provide signing compatible with intended use.	A. Specify off-road vehicle restrictions based on ORV use management (FSM 2355)
		B. See FSM 2331, FSM 7732, FSH 7709.12 (Trails Handbook), FSH 7109.11A and 11B (Sign Handbook)
	5. Prohibit motorized vehicle use off Forest System roads and trails (except snowmobiles operating on snow) in subalpine, and other ecosystems, where needed to protect soils, vegetation, or special wildlife habitat.	
	6. Close roads and trails to motorized travel when the surface would be damaged to the degree that resulting runoff into adjacent water bodies would exceed sediment yield threshold limits.	A. Specify off-road vehicle restrictions based on ORV use management (FSM 2355).
Recreation Management (Private and Other Public Sector) (A16)	1. Encourage development of private sector recreation oriented support services.	
Range Resource Management (D07)	1. Manage livestock distribution and stocking rates to be compatible with recreation use. Locate structural improvements to meet Visual Quality Objectives.	
Silvicultural Prescriptions (E03,05, 06 and 07)	1. Manage tree stands using both commercial or noncommercial methods. Enhance visual quality, diversity and insect and disease control.	

2. Manage forest cover types using the following harvest methods:
-Clearcut in aspen
-Shelterwood in ponderosa pine, mixed conifer and Engelmann spruce-subalpine fir
-Selection/group selection in any forest type except aspen
-Clearcut (patch) in dwarf mistletoe infected ponderosa pine and Douglas-fir.
-Or as specified by the silvicultural prescription.

3. Apply intermediate treatments to maintain growing stock level standards as specified in the silvicultural prescription.

4. Utilize firewood material using both commercial and noncommercial methods.

5. For management purposes, a cutover area is considered an opening until such time as:
-Forage and/or browse production drops below 40 percent of potential production;
-Deer and elk hiding cover reaches 60 percent of potential;
-Minimum stocking standards by forest cover type and site productivity are met; and
-The area appears as a young forest rather than a restocked opening, and takes on the appearance of the adjoining characteristic landscape.

A. When the Visual Quality Objective of an area is partial retention, the regenerated stand shall meet or exceed all of the following characteristics before a cutover area is no longer considered an opening:

FOREST COVER TYPE	MINIMUM STOCKING LEVEL (TREES/ACRE)	TREE STAND HEIGHT
Ponderosa Pine	150 2/	25
Mixed Conifers	150 2/	25
Engelmann Spruce-Subalpine Fir	150 2/	25
Aspen	300	25

FOREST COVER TYPE	CROWN CLOSURE (PERCENT)	DISTRIBUTION 3/
Ponderosa Pine	30	60%

Mineral Management
Oil, Gas, and Geothermal

1. Review and process mineral lease applications, permits, and licences in a timely fashion recommending to Bureau of Land Mgt. measures and stipulations necessary to protect surface resources.

A. Include applicable special stipulations. (See Appendix C)

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (2B)	STANDARDS AND GUIDELINES
		Mixed Conifers 30 60%
		Engelmann Spruce-Subalpine Fir 30 60%
		Aspen 30 75%
		1/ Applies to trees specified at minimum stocking level 2/ Or as otherwise specified in the Silvicultural Prescription 3/ Percent of plots or transects that are stocked.
Special Use Management (Non-Recreation) (J01)	1. Permit special uses which are complimentary and compatible with the kind and development level of the associated Forest Service facilities within the area.	A. Reference the ROS User's Guide.
Transportation System Management (L01 and 20)	1. Manage public use of roads with techniques such as, seasonal closure, time of day closures, etc.	
Trail System Management (L23)	1. Maintain existing motorized routes or construct new routes needed as part of the transportation system. Develop loop routes and coordinate them to compliment semi-primitive motorized opportunities in adjacent semi-primitive motorized ROS class areas.	A. On all nonforested areas, motorized trail and local road density is not to exceed 2 miles/square mile.

MANAGEMENT AREA 4A
FISH AND AQUATIC HABITAT

Characteristics

The management area is located adjacent to perennial streams and lakes in all areas of the Forest. Components of this management area are the aquatic ecosystem (the water and its associated biota), the riparian ecosystem (the land area immediately adjacent to the stream and characterized by distinct vegetation types), and adjacent ecosystems within approximately 100 feet of both edges of perennial streams and the shores of lakes and other still water bodies. All of the components are to be managed as a single land unit.

Desired Future Condition

The acreage of riparian areas would remain essentially the same as currently exists. The riparian ecosystems as a whole, would be healthy. Habitat would be available to support in excess of minimum viable populations of riparian dependent wildlife and fish species. Habitat improvement work would be accomplished when natural conditions were not sufficient desired populations. Water quality would not fall below existing levels and would be improved in many areas. Currently, stable stream channels would be maintained. Unstable channels would be improved to at least minimally acceptable standards. These areas should be capable of providing multiple resource outputs while providing protection to riparian dependent values.

Size

This management area contains 1100 acres. Nine hundred twenty eight acres are unsuitable for timber harvest.

Management Area Direction

The goals of management are to provide healthy, self-prepetuating plant communities, meet water quality standards, provide habitats for viable populations of wildlife and fish, and provide stable stream channels and still water body shorelines. The aquatic ecosystem may contain fisheries habitat improvement and channel stabilizing facilities that harmonize with the visual setting and maintain or improve wildlife or fish habitat.

Forest riparian ecosystems can be treated to improve wildlife and fish habitat diversity through specified silvicultural objectives. Timber harvest and other vegetation treatments are used to achieve multi-resource benefits while emphasizing riparian values.

Livestock grazing is at a level that will assure maintenance of the vigor and regeneration capacity of the riparian plant communities. Developed recreation and other construction of facilities is restricted or prohibited within the 100 year floodplain. Dispersed recreation will be managed to maintain ecological stability and visual objectives of the management area.

This management area will also be affected by other management activities in the Forest "General Direction". Most notable is the direction involving riparian area management, water resource improvement and maintenance, water uses management, and dam administration and maintenance.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (04A)	STANDARDS AND GUIDELINES
MANAGEMENT PRESCRIPTION 04A - EMPHASIS ON FISH AND AQUATIC HABITAT		
Visual Resource Management (A04)	1. Design and implement management activities which sustain inherent visual values of riparian areas and blend with the surrounding natural landscapes.	A. Do not go below an adopted visual quality objective (VQO) of partial retention or modification.
	2. Provide roaded natural recreation opportunities within 1/2 mile of Forest arterial, collector and local roads with better than primitive surfaces which are open to public travel. Provide roaded natural recreation opportunities with a low to moderate incidence of contact with other groups and individuals within 1/2 mile of designated local roads with primitive surfaces and trails open to motorized recreation use. Where local roads are closed to public motorized recreation travel, provide for dispersed non-motorized recreation opportunities. Management recreation use to provide for the incidence of contact with other groups and individuals appropriate for the established ROS class. Provide semi-primitive non-motorized recreation opportunities in all areas more than 1/2 mile away from roads and trails open to motorized recreation use.	A. Maximum use and capacity levels are:

RECREATION USE AND CAPACITY RANGE DURING THE SNOW-FREE PERIOD (PAOT/ACRE)

TRAIL USE AND CAPACITY RANGE (PAOT/MILE OF TRAIL)

	CAPACITY RANGE			
USE LEVEL	VERY LOW	LOW	MOD.	HIGH
ROS CLASS - SEMI-PRIMITIVE NONMOTORIZED				
On Trails PAOT/Mile	2.0	3.0	9.0	11.0
Area-Wide PAOT/Acre	.004	.008	.05	.08
ROS CLASS - SEMI-PRIMITIVE MOTORIZED				
On Trails PAOT/Mile	2.0	3.0	9.0	11.0
Area-Wide PAOT/Acre	.004	.008	.05	.08
ROS CLASS - ROADED NATURAL				
On Trails PAOT/Mile	--	--	--	--
Area-Wide PAOT/Acre	.04	.08	1.2	2.5
ROS CLASS - RURAL				

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (04A)	STANDARDS AND GUIDELINES
		On Trails PAOT/Mile -- -- -- -- Area-Wide PAOT/Acre .5 .8 5.0 7.5 Reduce the above use level coefficients as necessary to reflect usable acres, patterns of use, general attractiveness of the specific management area type as described in the ROS User's Guide, Chapter 25. Reduce the above use levels when unacceptable changes to the biophysical resources will occur.
		B. Specify off-road vehicle restrictions based on ORV use management (FSM 2355,
		C. See FSM 2331, FSM 7732, FSH 7709.12 (Trails Handbook), FSH 7109.11A and 11B (Sign Handbook)
	3. Permit undesignated sites in Frissell Condition Class 1 through 3 where unrestricted camping is permitted.	
	4. Manage site use and occupancy to maintain sites within Frissell Conditioh Class 3 except for designated sites which may be Class 4. Close and restore Class 5 sites.	
	5. Prohibit motorized vehicle use (including snowmobiles) off Forest system roads and trails in alpine shrub ecosystems. Prohibit motorized vehicle use off Forest systems roads (except snowmobiles) in other alpine, and other ecosystems, where needed to protect soils, vegetation, or special wildlife habitat.	
Wildlife Habitat Improvement and Maintenance. (C02, 04, 05 and 06)	1. Provide habitat diversity to meet or exceed our population goals for all aquatic vertebrate species.	A. Where natural biologic and geologic conditions will allow. Maintain or improve overall stream habitat condition at or above 70 percent of optimum. (Use R-4 GAWS Aquatic Habitat Surveys Handbook)

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (04A)	STANDARDS AND GUIDELINES
	2. Coordinate lake and stream habitat improvement projects with the State wildlife agencies, where aquatic habitats are below productive potential.	
	3. Maintain a current fish habitat inventory in cooperation with State wildlife agencies.	
	4. Maintain instream flows in cooperation with State wildlife agencies to support a sustained yield of natural fisheries resources.	A. Instream flows will be determined by R-4 GAWS Aquatic Habitat Surveys procedures or other accepted methodology.
Range Resource Management (D07)	1. Maintain proper stocking and livestock distribution to protect riparian ecosystems.	A. Livestock grazing in riparian areas will be controlled at the following levels of utilization:

GRAZING SYSTEM	VEGETATION CONDITION CLASS	TOTAL FORAGE UTILIZATION BY WEIGHT
1. GRASS/GRASSLIKE FORB VEG. TYPE		
Rest-Rotation	Use up to	60% desireable & intermediate species.
Deferred-Rotation	Use up to	50% desireable & intermediate species.
2. WILLOW/GRASS/GRASSLIKE VEGETATIVE TYPE		
Rest-Restoration	Use up to	60% desireable & intermediate species
Deferred-Rotation	Use up to	50% desireable & intermediate species.

(1) Trampled areas and streambank damage caused during a heavy use year should be healed or stabilized within the following rest year.

(2) Disturbance on heavy use pasture should be stabalized or healed prior to use the following year.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (04A)	STANDARDS AND GUIDELINES
		Browse utilization within the riparian ecosystem will not exceed 50% of new leader production.
Silvicultural Prescriptions (E03, 06 and 07)	1. Management forest cover types to perpetuate tree cover and provide healthy stands, high water quality and wildlife and fish habitat. 2. Manage forest cover types using the following harvest methods: -Clearcut in aspen, and -Selection (group or single tree) in all other cover types	A. SILVICULTURAL STANDARDS: (These standards may be exceeded on areas managed for old growth.) 1. CLEARCUT FOREST COVER TYPE ASPEN Rotation Age 80-120 years 2. SELECTION (GROUP OR SINGLE TREE) ALL OTHER FOREST COVER TYPES Rotation Age 90-160 years Cutting Cycle 20-30 years For group selection, size of openings are less than two acres.
	3. Apply intermediate treatments to maintain growing stock level standards.	
	4. Adjust stocking levels by site quality. Higher stocking should occur on better sites.	
	5. Establish a satisfactory stand, either naturally or through artificial regeneration methods, within a five-year period after disturbance.	
	6. Prohibit log landing and decking areas within the riparian area.	
	7. Reduce debris jam potential by cutting stumps to near ground level in the 100-year floodplain.	

<table>
<tr><th>PRACTICES/MIH CODE</th><th>MANAGEMENT DIRECTION (OAA)</th><th>STANDARDS AND GUIDELINES</th></tr>
<tr><td></td><td>8. For management purposes, a cut-over area is considered an opening until such time as:
-Increased water yield drops below 50 percent of the potential increase,
-Forage and/or browse production drops below 40 percent of potential production,
-Deer and elk hiding cover reaches 70 percent of potential
-Minimum stocking standards by forest cover type and site productivity are met; and
-The area appears as a young forest rather than a restocked opening, and takes on the appearance of the adjoining characteristic landscape.</td><td>A. When the visual quality objective of an area is partial retention. The regenerated stand shall meet or exceed all of the following characteristics before a cut-over area is no longer considered an opening:
<table>
<tr><th>FOREST COVER TYPE</th><th>MINIMUM STOCKING LEVEL (Trees/Acre)</th><th>TREE HEIGHT 1/ (% of the adjacent mature stand height)</th></tr>
<tr><td>Mixed Conifers</td><td>190</td><td>25%</td></tr>
<tr><td>Engelmann Spruce-Subalpine Fir</td><td>150</td><td>25%</td></tr>
<tr><td>Aspen</td><td>300</td><td>25%</td></tr>
</table>
<table>
<tr><th>FOREST COVER TYPE</th><th>CROWN CLOSURE (PERCENT)</th><th>DISTRIBUTION 2/</th></tr>
<tr><td>Mixed Conifers</td><td>30%</td><td>75%</td></tr>
<tr><td>Engelmann Spruce - Subalpine Fir</td><td>30%</td><td>75%</td></tr>
<tr><td>Aspen</td><td>30%</td><td>75%</td></tr>
</table>
1/ Applies to trees specified as minimum stocking level.
2/ Percent of plots or transects that are stocked.</td></tr>
<tr><td>Water Resource Improvement and Maintenance (F05 and 06)</td><td>1. Prevent or remove debris accumulations that reduce stream channel stability and capacity.</td><td></td></tr>
<tr><td></td><td>2. Proposed new land-use facilities (roads, campgrounds, buildings) will not normally be located within floodplain boundaries for the 100-year flood. Protect present and all future facilities that cannot be located out of the 100-year floodplain by structural mitigation (deflection structures, riprap, etc.).</td><td>A. Implement mitigation measures when present or unavoidable future facilities are located in the active floodplain to ensure that State water quality standards, sediment threshold limits, bank stability criteria, flood hazard</td></tr>
</table>

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (04A)	STANDARDS AND GUIDELINES
		reduction and instream flow standards are met during and immediately after construction.
	3. Prevent stream channel instability, loss of channel cross-sectional areas, and loss of water quality resulting from activities that alter vegetative cover.	
	4. Utilize appropriate sediment modeling techniques to determine sediment yield threshold limits for ground and vegetation disturbing management activities to meet the aquatic habitat condition objectives for these stream reaches.	A. Limit changes in channel rating or classification scores to an increase of 10 percent of less. B. Maintain at least 80 percent of potential ground cover within 100 feet from the edges of all perennial streams, lakes and other waterbodies, or to the outer margin of the riparian ecosystem, where wider than 100 feet.
	5. Avoid channelization of natural streams. Where channelization is necessary for flood control or other purposes, use stream geometry relationships to re-establish meanders, width/depth ratios, etc., consistent with each major stream type.	
	6. Treat disturbed areas resulting from management activities, to reduce sediment yields to the natural erosion rates in the shortest possible time.	
	7. Stabilize streambanks which are damaged beyond natural recovery in a reasonable time period with appropriate methods or procedures that emphasize control by vegetation.	
	8. Design and locate settling ponds to reduce downstream sediment yield and to prevent washout during high water. Locate settling ponds outside of the active channel. Restore any channel changes to hydraulic geometry standards for each stream type.	
	9. Include wildlife and fish habitat, aesthetic, or safety goals when planning projects that result in vegetation type conversion.	
	10. Require concurrent monitoring to ensure that mitigative measures are effective and in compliance with State water quality standards.	

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (04A)	STANDARDS AND GUIDELINES
Soil Resource Management (KA1)	1. Rehabilitation disturbed soils areas where adverse impacts would occur according to the following priorities: -Aquatic ecosystems, -Riparian ecosystems, and -Riparian areas outside of aquatic and riparian ecosystems.	
	2. Prevent soil surface compaction and disturbance in riparian ecosystems. Allow use of heavy construction equipment for construction, residue removal, etc., during periods when the soil is least susceptible to compaction or rutting.	
	3. Maintain or enhance the long-term productivity or soils within the riparian ecosystem.	
Mineral Management Oil, Gas and Geothermal	1. Review and process mineral lease applications, permits and licenses in a timely fashion recommending to Bureau of Land Management measures and stipulations necessary to protect surface resources.	A. Include special Stipulation #1. (No-surface-occupancy) for designated areas. (See Appendix H.)
Mining Law Compliance and Administration (G01)	1. Minimize detrimental disturbance to the riparian area by mineral activities. Initiate timely and effective rehabilitation of disturbed areas and restore riparian areas to a state of productivity comparable to that disturbance.	A. Prohibit the depositing of soil material from drilling, processing, or site preparation in natural drainageways. B. Locate the lower edge of disturbed or deposited soil banks outside the active floodplain. C. Prohibit stockpiling of topsoil or any other disturbed soil in the active floodplain. D. Prohibit mineral processing (milling) activities within the active floodplain. E. Discontinue heavy equipment use when soil compaction, rutting, and puddling is present.
	2. Locate mineral removal activities away from the water's edge or outside the riparian area.	A. Locate drilling mud pits outside the active floodplain unless alternate locations are more environmentally damaging. If location is unavoidable seal and dike all pits to prevent leakage. B. Drain and restore roads, pads, and drill sites immediately after use is discontinued. Revegetate to 80 percent of ground cover in the first year. Provide surface protection during stormflow and snowmelt runoff events.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (OAA)	STANDARDS AND GUIDELINES
	3. Design and locate placer mine settling ponds to prevent washout during high water. Locate settling ponds outside of the active channel. Restore any channel changes to hydraulic geometry standards for each stream type.	A. Permit diversion activities within the riparian zone where technology is available to maintain water quality standards, sediment threshold limits, and instream flow standards.
	4. Confine heavy equipment use to areas necessary for mineral extraction.	
	5. Locate mining camps outside the active floodplain.	
	6. Require concurrent monitoring to ensure that mitigative measures are effective and in compliance with State water quality standards.	
Mineral Management Oil, Gas and Geothermal	1. Review and process mineral lease applications, permits and licenses in a timely fashion recommending to Bureau of Land Management measures and stipulations necessary to protect surface resources.	A. Include special Stipulation #1. (No-surface-occupancy) for designated areas. (See Appendix H.)
Transportation System Management (L01 and 20)	1. Locate roads and trails outside riparian areas unless alternative routes have been reviewed and rejected as being more environmentally damaging.	A. Do not parallel streams when road location must occur in the riparian areas except where absolutely necessary. Cross streams at right angles. Locate crossings at points of low bank slope and firm surfaces.
	2. Create artificial sediment traps with barriers where the natural vegetation is inadequate to protect the waterway or lake from significant accelerated sedimentation.	
	3. Minimize detrimental disturbance to the riparian area by construction activities. Initiate timely and effective rehabilitation of disturbed areas and restore riparian areas so that a vegetation ground cover or suitable substitute protects the soil from erosion and prevents increased sediment yield.	

MANAGEMENT AREA 4B
WILDLIFE HABITAT MIS SPECIES

Characteristics

This management area occurs in areas which have been determined to be of especially high value as wildlife habitats; i.e., deer fawning/elk calving areas, prairie dog towns, sage grouse booming grounds, etc. The area is not typified by any particular vegetation type, but is dependent on the requirements of the emphasized wildlife or fish species.

Desired Future Condition

The area(s) should provide nearly optimum habitat conditions for the fish or wildlife species being emphasized.

Size

This management area contains 36,700 acres. Thirty-six thousand six hundred ninety two acres are unsuitable for timber harvest.

Management Area Direction

Management emphasis is on the habitat needs of one or more management indicator or other emphasized species. Species with compatible habitat needs are selected for an area. The goal is to optimize habitat capability, and thus numbers of the species. The prescription can be applied to emphasize groups of species, such as early succession dependent or late succession dependent, in order to increase species richness or diversity.

Vegetation characteristics and human activities are managed to provide optimum habitat for the selected species, or to meet population goals jointly agreed to with the state fish and wildlife agencies. Tree stands are managed for specific size, shape, interspersion, crown closure, age, structure, and edge contrast. Grass, forb, and browse vegetation characteristics are regulated. Rangeland vegetation is managed to provide needed vegetation species composition and interspersed grass, forb, and shrub sites or variety in age or browse plants. Fish habitat improvement treatments are applied to lakes and streams to enhance habitats and increase fish populations.

Recreation and other human activities are regulated to favor the needs of the designated species. Roaded-natural recreation opportunities are provided along Forest arterial and collector roads. Local roads and trails are either open or closed to public motorized travel. Semi-primitive motorized recreation opportunities are provided on those local roads and trails that remain open, semi-primitive nonmotorized opportunities are provided on those that are closed. A full range of tree harvest methods and rangeland vegetation treatment methods are available. Investments in other compatible resource uses may occur but will be secondary to wildlife habitat requirements. Management activities may dominate in foreground and middleground, but harmonize and blend with the natural setting.

MANAGEMENT PRESCRIPTION 04B - EMPHASIZE WILDLIFE HABITAT FOR MANAGEMENT INDICATOR SPECIES

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (04B)	STANDARDS AND GUIDELINES
Visual Resource Management (A04)	1. Design and implement management activities to blend with the natural landscape.	A. Do not go below an adopted Visual Quality Objective (VQO) of modification.
Dispersed Recreation Management (A14 and 15)	1. Management human recreational activities so they do not conflict with habitat needs of selected indicator species. 2. Semi-primitive nonmotorized, semi-primitive motorized, roaded natural and rural recreation opportunities can be provided.	A. Maximum use and capacity levels are:

RECREATION USE AND CAPACITY RANGE DURING THE SNOW-FREE PERIOD (PAOT/ACRE)

TRAIL USE AND CAPACITY RANGE (PAOT/MILE OF TRAIL)

	CAPACITY RANGE			
USE LEVEL	VERY LOW	LOW	MOD.	HIGH
ROS CLASS - SEMI-PRIMITIVE NONMOTORIZED				
On Trails PAOT/Mile	2.0	3.0	9.0	11.0
Area-Wide PAOT/Acre	.004	.008	.05	.08
ROS CLASS - SEMI-PRIMITIVE MOTORIZED				
On Trails PAOT/Mile	2.0	3.0	9.0	11.0
Area-Wide PAOT/Acre	.004	.008	.05	.08
ROS CLASS - ROADED NATURAL				
On Trails PAOT/Mile	--	--	--	--
Area-Wide PAOT/Acre	.04	.08	1.2	2.5

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (04B)	STANDARDS AND GUIDELINES
		ROS CLASS - RURAL On Trails PAOT/Mile -- -- -- -- Area-Wide PAOT/Acre .5 .8 5.0 7.5 Reduce the above use level coefficients as necessary to reflect usable acres, patterns of use, general attractiveness of the specific management area type as described in the ROS User's Guide, Chapter 25. Reduce the above use levels when unacceptable changes to the biophysical resources will occur.
		B. Specify off-road vehicle restrictions based on ORV use management (FSM 2355,
		C. See FSM 2331, FSM 7732, FSH 7709.12 (Trails Handbook), FSH 7109.11A and 11B (Sign Handbook)
	3. Permit undesignated sites in Frissell Condition Class 1 through 3 where unrestricted camping is permitted.	
	4. Manage site use and occupancy to maintain sites within Frissell Condition Class 3 except for designated sites which may be Class 4. Close and restore Class 5 sites.	
	5. Prohibit motorized vehicle use off Forest System roads and trails (except snowmobiles operating on snow) in subalpine and other ecosystems where needed to protect soils, vegetation, or special wildlife habitat.	
Wildlife and Fish Resource Management (C01)	1. Manage for habitat needs of management indicator, unique threatened and/or endangered species.	A. Maintain habitat capability at a level at least 80 percent of potential capability for all emphasized species.
	2. Emphasis on species commonly hunted, fished, or trapped will follow species priorities established by States.	A. Maintain the habitat needed to support the coordinated population goals for each species.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (04B)	STANDARDS AND GUIDELINES
	3. Maintain hiding cover for elk and deer, where present.	A. Maintain along 75 percent of all arterial and collector road edges cover that hides 90 percent of an adult standing deer or elk from human view at a distance of 200 feet from the road. B. In management areas dominated by forested ecosystems, maintain a minimum of 50 percent in deer or elk hiding cover. This hiding cover should be well distributed over the unit. Maintain 30 percent of the unit in thermal cover (winter or spring-fall). Hiding cover can be used to meet thermal cover requirements if they indeed coincide biologically.
Silvicultural Prescriptions (E03, E05, 06 and 07)	1. Manage forest cover types to provide variety in stand sizes, shape, crown closure, edge contrast and age structure.	
	2. Manage forest cover types using the following harvest methods: -Clearcut in aspen -Shelterwood in ponderosa pine and mixed conifer -Selection (group or single tree) in Engelmann spruce - subalpine fir -Clearcut (patch) in dwarf mistletoe infected ponderosa pine and Douglas fir -Or as specified in the silvicultural prescription for emphasis of wildlife indicator species.	
	3. Apply intermediate treatments to maintain growing stock level standards as specified in the silvicultural prescription.	
	4. Utilize firewood material using both commercial and noncommercial methods.	
	5. For management purposes, a cutover area is considered an opening until such time as: -Forage and/or browse production drops below 40 percent of potential, -Deer and elk hiding cover reaches 80 percent of potential -Minimum stocking standards by forest cover type and site productivity are met; and	A. When the Visual Quality Objective of an area is partial retention, the regenerated stand shall meet or exceed all of the following characteristics before a cutover area is no longer considered an opening:

PRACTICES/MIH CODE | MANAGEMENT DIRECTION (04B) | STANDARDS AND GUIDELINES

-The area appears as a young forest rather than a restocked opening, and takes on the appearance of the adjoining characteristic landscape.

FOREST COVER TYPE	MINIMUM STOCKING LEVEL (TREES/ACRE)	TREE STAND HEIGHT (FEET) 1/
Ponderosa Pine	150 2/	6
Mixed Conifers	150 2/	6
Engelmann Spruce-Subalpine Fir	150 2/	6
Aspen	300	6

FOREST COVER TYPE	CROWN CLOSURE (PERCENT)	DISTRIBUTION 3/
Ponderosa Pine	30	60%
Mixed Conifers	30	60%
Engelmann Spruce-Subalpine Fir	30	60%
Aspen	30	75%

1/ Applies to trees specified at minimum stocking level
2/ Or as otherwise specified in the Silvicultural Prescription
3/ Percent of plots or transects that are stocked.

Transportation System Management
(L01 and 20)

1. Manage road use to provide for habitat needs of management indicator species, including road closures and area closures, and to maintain habitat effectiveness. Management and/or closures will be specified by time periods and specific needs.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (04B)	STANDARDS AND GUIDELINES
Fuel Treatment (P11 through 14)	1. Maintain fuel conditions which permit fire suppression and prescribed fire to maintain habitat needed for selected species or species population levels.	Optimum vegetation stages for wildlife habitat are described in wildlife section of this plan.
Range Resource Management (D07)	1. Implement rotation grazing systems.	
	2. Apply wildlife and livestock forage allowable use guides specified in Forest direction. Modify so that needs of management indicator species are met.	
	3. Structural range improvement should be designed to benefit wildlife and livestock.	A. Structural improvements will not adversely affect big game movement (FSH 2209.22)

MANAGEMENT AREA 4C
WILDLIFE HABITAT - BRUSHY RANGE

Characteristics

This management area occurs one sites dominated by gambel oak, pinyon-juniper, cottonwoods, mountain mahogany, or other woody plant species with a similar growth form.

Desired Future Condition

Acreage of these areas will remain the same as currently exists. Diversity sufficient to support all native wildlife species characteristic of the type will be maintained. Adequate regeneration within the type will be maintained so that all age classes are represented.

Size

This management area contains 72,900 acres. Seventy two thousand eight hundred one acres are unsuitable for timber harvest.

Management Area Direction

Management emphasis is on wildlife habitat in hardwood and shrub-dominated draws and other areas of woody vegetation to sustain their inherent biological, physical, and visual values. Deciduous trees are regenerated. Diversity is achieved among individual sites of pinyon-juniper, gambel oak, cottonwood, mountain mahogany and other woody plant species. Vegetation characteristics on individual sites are diversified according to the wildlife goals for the site. Trees and shrubs are planted to supplement natural regeneration where needed. Woody cover in late seral stage is emphasized and is maintained adjacent to water. Direct habitat improvement projects occur.

Investments in compatible resources are made. Livestock grazing may occur, but is secondary to maintenance of desired woody plant characteristics. Management activities may dominate in foreground or middleground, but harmonize and blend in the natural setting. Recreational opportunities vary between semi-primitive nonmotorized and roaded natural.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (04C)	STANDARDS AND GUIDELINES
MANAGEMENT PRESCRIPTION 04C - EMPHASIZE WILDLIFE HABITAT IN WOODY DRAWS AND OTHER VEGETATION AREAS ON RANGELANDS		
Visual Resource Management (A04)	1. Design and implement management activities to blend with the natural landscape.	A. Do not go below an adopted Visual Quality Objective (VQO) of modification
Dispersed Recreation Management (A14 and 15)	1. Manage human recreational activities so they do not conflict with habitat needs of selected indicator species.	
	2. Semi-primitive nonmotorized, semi-primitive motorized, roaded natural and rural recreation opportunities can be provided.	A. Maximum use and capacity levels are:

RECREATION USE AND CAPACITY RANGE DURING THE SNOW-FREE PERIOD (PAOT/ACRE)

TRAIL USE AND CAPACITY RANGE (PAOT/MILE OF TRAIL)

USE LEVEL	CAPACITY RANGE VERY LOW	LOW	MOD.	HIGH
ROS CLASS - SEMI-PRIMITIVE NONMOTORIZED				
On Trails PAOT/Mile	2.0	3.0	9.0	11.0
Area-Wide PAOT/Acre	.004	.008	.05	.08
ROS CLASS - SEMI-PRIMITIVE MOTORIZED				
On Trails PAOT/Mile	2.0	3.0	9.0	11.0
Area-Wide PAOT/Acre	.004	.008	.05	.08
ROS CLASS - ROADED NATURAL				
On Trails PAOT/Mile	--	--	--	--
Area-Wide PAOT/Acre	.04	.08	1.2	2.5

PRACTICES	MIH CODE	MANAGEMENT DIRECTION (04C)	STANDARDS AND GUIDELINES
			ROS CLASS - RURAL On Trails PAOT/Mile -- -- -- -- Area-Wide PAOT/Acre .5 .8 5.0 7.5
			Reduce the above use level coefficients as necessary to reflect usable acres, patterns of use, general attractiveness of the specific management area type as described in the ROS User's Guide, Chapter 25.
			Reduce the above use levels when unacceptable changes to the biophysical resources will occur.
			B. Specify off-road vehicle restrictions based on ORV use management (FSM 2355)
			C. See FSM 2331, FSM 7732, FSH 7709.12 (Trails Handbook), FSH 7109.11A and 11B (Sign Handbook)
			D. Prohibit open fires when the occurrence of fire rings exceed Frissell Class 1 site condition on 10 percent or more of the known campsites.
		3. Permit undesignated sites in Frissell Condition Class 1 through 3 where unrestricted camping is permitted.	
		4. Manage site use and occupancy to maintain sites within Frissell Condition Class 3 except for designated sites which may be Class 4. Close and restore Class 5 sites.	
Wildlife Habitat Improvement and Maintenance (C02, 04, 05 and 06)		1. Manage for habitat needs of emphasized species.	A. Maintain habitat capability at a level at least 80 percent of potential capability for species other than early succession-oriented species.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (04C)	STANDARDS AND GUIDELINES
Range Resource Management (D07)	1. Prevent habitat degradation adjacent to water sources.	A. Unregulated livestock access to water impoundments behind dams must be managed to preserve the adjacent vegetative ecosystem. B. Maintain late seral stage vegetation on at least 20-50 percent of the area, within 100-400 foot radius around all created water sources except impoundment behind dams.
	2. Perpetuate woody vegetation.	A. Maintain woody vegetation in all stages of development on at least 60 percent of the area.
	3. Apply wildlife and livestock forage allowable use guides specified in Forest direction. Modify so that needs of management indicator species are met.	A. Maintain vegetation in fair or better range condition.
	4. Implement rotation grazing systems.	
Range Improvement and Maintenance (D03, 04, 05 and 06)	1. Structural range improvement should be designed to benefit wildlife and livestock.	A. Structural improvements will not adversely affect big game movement (FSH 2209.22)
Transportation System Management (L01 and 20)	1. Restrict off-road vehicle travel as needed to protect management indicator species and other species.	A. Determine off-road vehicle restrictions based on the needs of wildlife.
	2. Locate and construct roads to maintain the basic natural condition, character, and habitat effectiveness of woody draws.	
Silvicultural Prescriptions (E03, 06 and 07)	1. Manage forest cover types using the following harvest methods: -Clearcut in aspen -Shelterwood in ponderosa pine and mixed conifer -Selection (group or single tree) in any forest type except aspen -Clearcut (patch) in dwarf mistletoe infected ponderosa pine and Douglas-fir -Or as specified in the silvicultural prescription to emphasize wildlife	

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (04C)	STANDARDS AND GUIDELINES

2. For management purposes, a cutover area is considered an opening until such time as:
-Forage and/or browse production drops below 40 percent of potential production,
-Deer and elk hiding cover reaches 80 percent of potential;
-Minimum stocking standards by forest cover type and site
-productivity are met; and
-The area appears as a young forest rather than a restocked opening, and takes on the appearance of the adjoining characteristic landscape.

A. When the Visual Quality Objective of an area is partial retention, the regenerated stand shall meet or exceed all of the following characteristics before a cutover area is no longer considered an opening:

FOREST COVER TYPE	MINIMUM STOCKING LEVEL (TREES/ACREO	TREE STAND HEIGHT (FEET) 1/
Ponderosa Pine	150 2/	6
Mixed Conifers	150 2/	6
Engelmann Spruce-Subalpine Fir	150 2/	6
Aspen	300	6

FOREST COVER TYPE	CROWN CLOSURE (PERCENT)	DISTRIBUTION 3/
Ponderosa Pine	30	60%
Mixed Conifers	30	60%
Engelmann Spruce-Subalpine Fir	30	60%
Aspen	30	75%

1/ Applies to trees specified at minimum stocking level
2/ Or as otherwise specified in the Silvicultural Prescription
3/ Percent of plots or transects that are stocked.

MANAGEMENT AREA 4D
ASPEN MANAGEMENT

Characteristics

This management area typically occurs in areas that are dominated by extensive stands of more or less pure aspen.

Desired Future Condition

Acreage of these areas will remain essentially the same as currently exists. A variety of age classes will be maintained in all areas so that all native wildlife species characteristic of the habitat type will be provided for.

Size

This management area contains 10,539 acres. Four thousand forty two acres are unsuitable for timber harvest.

Management Area Direction

Management emphasis is on maintaining and improving aspen sites. Other tree species, if present, are de-emphasized. Aspen is managed to produce wildlife habitat, wood products, visual quality, and plant and animal diversity. Aspen clones are maintained. On larger areas, a variety of aspen stand ages, sizes, shapes, and interspersion are maintained. Both commercial and noncommercial treatments are applied. Even-aged management is practiced and is achieved by varying the size, age, shape, and interspersion of individual stands. Management activities in foreground and middleground are dominant, but harmonize and blend with the natural setting. Individual treatments generally are smaller than 40 acres.

Recreational opportunities available are semi-primitive nonmotorized and motorized or roaded natural. Some temporary or seasonal road and area use restrictions are implemented to prevent disturbance of wildlife or improve hunting and fishing quality.

Investments in other compatible resources occur. Livestock grazing can occur, but is subordinate to wildlife habitat needs and required protection of young aspen needed for regeneration.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (04D)	STANDARDS AND GUIDELINES
MANAGEMENT PRESCRIPTION 04D - EMPHASIZE ASPEN MANAGEMENT FOR WILDLIFE		
Diversity on National Forests and National Grasslands (A00)	1. Maintain aspen clones.	A. Regeneration by clearcutting before clone reaches decadence.
Visual Resource Management (A04)	1. Vary location of treated clones to maintain natural-appearing diversity in age classes.	A. Do not go below an adopted Visual Quality Objective (VQO) of modification.
	2. Emphasize aspen viewing areas.	
Management of Developed Recreation Sites (A08, 09, 11 and 13)	1. Prohibit development of new recreation sites.	
Wildlife and Fish Resource Management (C01)	1. Manage for habitat needs of emphasized species.	A. Maintain big game hiding cover next to aspen viewing areas, and along the edge of arterial and collector roads. B. Maintain habitat capability at a level at least 70 percent of potential capability for aspen dependent and big game species.
	2. Maintain habitat effectiveness for elk.	A. Maintain at least 80 percent habitat effectiveness.
	3. Maintain standing dead trees.	A. Provide snags needed to maintain habitat capability for cavity dependent wildlife at 80 percent or more of potential.
	4. Maintain aspen dominance on determinate and indeterminate sites.	
Range Resource Management (D07)	1. Protect aspen regeneration.	A. Where there has been manipulation to induce aspen regeneration, promote aspen regeneration livestock use.
	2. Maintain fair or better range conditions.	
Silvicultural Prescriptions (E03, 06 and 07)	1. Manage aspen forest cover type to perpetuate aspen using even-aged silviculture.	A. Silvicultural Standards: (These standards may be exceeded on areas managed for old growth.)

1. Clearout (Stand or Clone)

	FOREST COVER TYPE
	ASPEN
Rotation Age	40-120 years
Thinning Cycle	N/A

2. Limit individual regeneration acres to a 40 acre maximum or the size of a clone, whichever is smaller.

2. Utilize firewood material using both commercial and noncommercial methods.

3. For management purposes, a cutover area is considered an opening until such time as:
-Forage and/or browse production drops below 40 percent of potential production,
-Deer and elk hiding cover reaches 80 percent of potential,
-Minimum stocking standards by forest cover type and site productivity are met; and
-The area appears as a young forest rather than a restocked opening, and takes on the appearance of the adjoining characteristics landscape.

A. When the Visual Quality Objective of an area is partial retention, the regenerated stand shall meet or exceed all of the following characteristics before a cutover area is no longer considered an opening:

FOREST COVER TYPE	MINIMUM STOCKING LEVEL (TREES/ACRE)	TREE STAND HEIGHT (FEET) 1/
Ponderosa Pine	150 2/	6
Mixed Conifers	150 2/	6
Engelmann Spruce-Subalpine Fir	150 2/	6
Aspen	300	6

FOREST COVER TYPE	CROWN CLOSURE (PERCENT)	DISTRIBUTION 3/
Ponderosa Pine	30	60%

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (04D)	STANDARDS AND GUIDELINES		
		Mixed Conifers	30	60%
		Engelmann Spruce-Subalpine Fir	30	60%
		Aspen	30	75%
		1/ Applies to trees specified at minimum stocking level 2/ Or as otherwise specified in the Silvicultural Prescription 3/ Percent of plots or transects that are stocked.		
Fuel Treatment (F11 thru 14)	1. Emphasize prescribed burning where feasible to regenerate aspen to benefit wildlife. 2. Protect wildlife trees during fuelwood cutting and prescribed burning as needed to meet snag density guidelines.	A. Allow aspen regeneration to occur naturally.		

MANAGEMENT AREA 5A
BIG-GAME WINTER RANGE

Characteristics

This management area typically occurs on the lower elevation foothills, benches, and valleys at the base of mountains and plateaus. The dominant vegetation; is pinyon-juniper, oak, mountain shrub and sagebrush.

Desired Future Condition

Acreage of these areas will remain essentially the same as currently exists. Forage production will be improved and increased. Various browse species; sagebrush, bitterbrush, mountain mahogany, oak, etc., provide the majority of winter forage in these areas. The most palatable browse and other forage species will be favored. Thermal cover will be retained and improved. Vehicle traffic and public access will be restricted to prevent stress on wintering animals.

Size

This management area contains 313,600 acres. Three hundred seven thousand six hundred one acres are unsuitable for timber harvest.

Management Area Direction

Management emphasis is on winter range for deer, elk, and pronghorn. Treatments are applied to increase forage production of existing grass, forb, and browse species or to alter plant species composition. Prescribed burning, seeding, spraying, planting, and mechanical treatments may occur. Browse stands are regenerated to maintain a variety of age classes and species.

Investments in compatible resource activities occur. Livestock grazing is compatible, but conflicts will be resolved in favor of wildlife. Structural range improvements benefit wildlife. Management activities are not evident, remain visually subordinate, or are dominant in the foreground or middleground, but harmonize or blend with the natural setting.

New roads other than short-term (temporary) roads are located outside of the management area. Short term roads are obliterated within one season after intended use. Existing local roads are closed and new motorized recreation use is managed to prevent unacceptable stress on big game animals during the primary big game use season.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (05A)	STANDARDS AND GUIDELINES
MANAGEMENT PRESCRIPTION 05A - EMPHASIZE BIG GAME WINTER RANGE ON NON-FORESTED AREAS		
Visual Resource Management (A04)	1. Design and implement management activities to blend with the natural landscape.	A. Do not go below an adopted Visual Quality Objective (VQO) of modification.
Management of Developed Recreation Sites (A08, 09, 11 and 13)	1. Design, construct and operate only those developed sites which are needed to meet summer season management objectives, and are appropriate for the established ROS designation. Close all developed sites during the winter management season.	
Dispersed Recreation Management (A14 and 15)	1. Manage summer use-season for appropriate ROS opportunities Provide roaded natural recreation opportunities within one-half mile of Forest arterial, collector and local roads with better than primitive surfaces which are open to public motorized travel. Provide semi-primitive motorized recreation opportunities with a low to moderate incident of contact with other groups and individuals within one-half mile of designated local roads with primitive surfaces and trails open to motorized recreation use. Where local roads are closed to public motorized recreation travel, provide for dispersed non-motorized recreation opportunities. Manage recreation use to provide for the incidence of contact with other groups and individuals appropriate for the established ROS class. Provide semi-primitive non-motorized recreation opportunities in all areas more than one-half mile away from roads and trails open to motorized recreation use.	A. Maximum use and capacity levels are:

RECREATION USE AND CAPACITY RANGE DURING THE SNOW-FREE PERIOD (PAOT/ACRE)

TRAIL USE AND CAPACITY RANGE (PAOT/MILE OF TRAIL)

	CAPACITY RANGE			
USE LEVEL	VERY LOW	LOW	MOD.	HIGH
ROS CLASS - PRIMITIVE				
On Trails PAOT/Mile	0.5	1.0	2.0	3.0
Area-Wide PAOT/Acre	.001	.002	.007	.025
ROS CLASS - SEMI-PRIMITIVE NONMOTORIZED				
On Trails PAOT/Mile	2.0	3.0	9.0	11.0
Area-Wide PAOT/Acre	.004	.008	.05	.08
ROS CLASS - SEMI-PRIMITIVE MOTORIZED				
On Trails PAOT/Mile	2.0	3.0	9.0	11.0
Area-Wide PAOT/Acre	.004	.008	.05	.08

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (05A)	STANDARDS AND GUIDELINES
		ROS CLASS - ROADED NATURAL On Trails PAOT/Mile -- -- -- -- Area-Wide PAOT/Acre .04 .08 1.2 2.5
		Reduce the above use level coefficients as necessary to reflect usable acres, patterns of use, general attractiveness of the specific management area type as described in the ROS User's Guide, Chapter 25.
		Reduce the above use levels when unacceptable changes to the biophysical resources will occur.
		B. Specify off-road vehicle restrictions based on ORV use management (FSM 2355)
		C. See FSM 2331, FSM 7732, FSH 7709.12 (Trails Handbook), FSH 7109.11A and 11B (Sign Handbook)
		D. Prohibit open fires when the occurrence of fire rings exceed Frissell Class 1 site condition on 10 percent or more of the known campsites.
	2. Manage winter use for very low or low densities. Close areas to human use to the degree necessary during periods of maximum wildlife use.	A. Close management area to cross-country ski trail development and to snowmobile use.
		B. Do not provide parking or trailhead facilities during winter.
Wildlife and Fish Resource Management (C01)	1. Provide big-game forage and cover, and habitat.	A. Maintain at least 30 percent of shrub plants in mature age, and at least 10 percent in young stage.
		B. Maintain at least two shrub species on shrub lands capable of growing two or more shrub species.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (05A)	STANDARDS AND GUIDELINES
		C. Maintain habitat effectiveness during winter of at least 90 percent.
		D. Maintain habitat capability to meet coordinated population goals for big game.
Range Resource Management (D07)	1. Manage grazing to favor big-game and to achieve the wildlife populations identified in State-wide comprehensive wildlife plans.	A. Maintain vegetation in fair or better range condition.
		B. Limit livestock use of browse and herbaceous plant production to that not needed by big game.
Special Use Management (Non-Recreation) (J01)	1. Resolve special uses that conflict with wintering animals.	
Rights-of-Way and Land Adjustments (J02, 13, 15, 16, 17 and 18)	1. Acquire private lands needed for big-game winter range.	
Transportation System Management (L01 and 20)	1. Road traffic and road cut or fill slopes must not block big game movement in delineated migration routes or corridors.	
	2. Allow new roads in the management area only if needed to meet priority goals outside the management area to meet big game goals on the management area. Obliterate temporary roads within one season after planned use ends.	A. New permanent or temporary roads constructed in the management area must meet the following criteria: 1. There is no feasible alternative to build the road outside the area and the road is essential to achieve priority goals and objectives of contiguous management areas, or to provide access to land administered by other Government agencies or to contiguous private land. 2. The Utah DWR has been fully involved in the road location, planning and alternative evaluation. 3. Planned management of road use during winter will prevent or minimize disturbance of wintering big game animals, or will allow hunting and other management activities needed to meet wildlife management objectives.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (05A)	STANDARDS AND GUIDELINES
		4. Roads are constructed to the minimum standards necessary to provide safety for the road use purpose.
		5. Roads cross the winter range in the minimum distance feasible to facilitate the necessary use.
	3. Manage existing roads, prohibit off-road vehicle use and manage non-motorized use to prevent stress on big game animals.	A. Opening of existing roads during winter can be approved if the following criteria are met: 1. There is no reasonable alternative for owners or managers of contiguous private land or public land to reach their land during winter. 2. Road use, off-road vehicle use, or non-motorized use of the area is essential and is the minimum necessary to meet priority resource management goals and objectives. 3. The Utah DWR is fully involved in planning human use of the area during winter.
Mineral Management Oil, Gas and Geothermal	1. Review and process mineral lease application, permits and licences in a timely fashion recommending to Bureau of Land Mgt. measures and stipulations necessary to protect surface resources.	A. Include applicable special stipulations. (See Appendix C)

MANAGEMENT AREA 5B
BIG-GAME WINTER RANGE

Characteristics

This management area occurs on the southeast slopes of Mt. Dutton on the Powell Ranger District, where it is typified by patches of mixed conifer (Douglas fir, subalpine fir, white fir) interspersed with mountain brush and sagebrush and on the east slopes of the Teasdale Ranger District where it is typified by ponderosa pine grading into mountain brush (Gambel oak).

Desired Future Conditions

Acreage of these areas will remain essentially the same as currently exists. Forage production will be improved and increased, favoring the most palatable browse and other forage species. Thermal cover will be retained and improved. Vehicle traffic and public access will be restricted to prevent stress on wintering animals.

Size

This management area contains 23,600 acres. Twenty two thousand three hundred thirty three acres are unsuitable for timber harvest.

Management Area Direction

Management emphasis is on forage and cover on winter ranges. Winter habitat for deer and elk is emphasized. Treatments to increase forage production or to create and maintain thermal and hiding cover for big game are applied. Tree stand treatments can be clearcut, shelterwood, single tree selection or group selection. Commercial and noncommercial stand treatments occur. Specific cover-opening ratios, and stand designs are maintained. Treatments to grass, forb, browse, and noncommercial tree species include seeding, planting, spraying, burning, falling and mechanical chopping or crushing. A variety of browse age classes are maintained. Continuous Forest cover is maintained on some sites.

Investments in compatible resources occur. Livestock grazing is compatible, but conflicts will be resolved in favor of wildlife. Structural range improvements benefit wildlife. Management activities are not evident, remain visually subordinate, or dominate in the foreground and middleground, but harmonize and blend with the natural setting.

Short term roads are obliterated within one season after intended use. Existing local roads and new motorized recreation uses all managed to prevent unacceptable stress on big game animals.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (05B)	STANDARDS AND GUIDELINES
MANAGEMENT PRESCRIPTION 05B		
Visual Resource Management (A04)	1. Design and implement management activities to blend with the natural landscape.	A. Do not go below an adopted Visual Quality Objective (VQO) of modification.
Management of Developed Recreation Sites (A08, 09, 11 and 13)	1. Design, construct and operate only those developed sites which are needed to meet summer season management objectives, and are appropriate for the established ROS designation. Close all developed sites during the winter management season.	
Dispersed Recreation Management (A14 and 15)	1. Manage summer use-season for appropriate ROS opportunities Provide roaded natural recreation opportunities within one-half mile of Forest arterial, collector and local roads with better than primitive surfaces which are open to public motorized travel. Provide semi-primitive motorized recreation opportunities with a low to moderate incident of contact with other groups and individuals within one-half mile of designated local roads with primitive surfaces and trails open to motorized recreation use. Where local roads are closed to public motorized recreation travel, provide for dispersed non-motorized recreation opportunities. Manage recreation use to provide for the incidence of contact with other groups and individuals appropriate for the established ROS class. Provide semi-primitive non-motorized recreation opportunities in all areas more than one-half mile away from roads and trails open to motorized recreation.	A. Maximum use and capacity levels are:

RECREATION USE AND CAPACITY RANGE DURING THE SNOW-FREE PERIOD (PAOT/ACRE)

TRAIL USE AND CAPACITY RANGE (PAOT/MILE OF TRAIL)

	CAPACITY RANGE			
USE LEVEL	VERY LOW	LOW	MOD.	HIGH
ROS CLASS - PRIMITIVE				
On Trails PAOT/Mile	0.5	1.0	2.0	3.0
Area-Wide PAOT/Acre	.001	.002	.007	.025
ROS CLASS - SEMI-PRIMITIVE NONMOTORIZED				
On Trails PAOT/Mile	2.0	3.0	9.0	11.0
Area-Wide PAOT/Acre	.004	.008	.05	.08
ROS CLASS - SEMI-PRIMITIVE MOTORIZED				
On Trails PAOT/Mile	2.0	3.0	9.0	11.0
Area-Wide PAOT/Acre	.004	.008	.05	.08

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (05B)	STANDARDS AND GUIDELINES
		ROS CLASS - ROADED NATURAL On Trails PAOT/Mile -- -- -- -- Area-Wide PAOT/Acre .04 .08 1.2 2.5
		Reduce the above use level coefficients as necessary to reflect usable acres, patterns of use, general attractiveness of the specific management area type as described in the ROS User's Guide, Chapter 25.
		Reduce the above use levels when unacceptable changes to the biophysical resources will occur.
		B. Specify off-road vehicle restrictions based on ORV use management (FSM 2355)
		C. See FSM 2331, FSM 7732, FSH 7709.12 (Trails Handbook), FSH 7109.11A and 11B (Sign Handbook)
		D. Prohibit open fires when the occurrence of fire rings exceed Frissell Class 1 site condition on 10 percent or more of the known campsites.
	2. Manage winter use for very low or low densities. Close areas to human use to the degree necessary in winter to prevent disturbance of wildlife.	A. Close management area to cross-country ski trail development and to snowmobile use.
		B. Do not provide parking or trailhead facilities during winter.
Wildlife and Fish Resource Management	1. Provide big game forage and cover, and habitat.	A. Maintain at least 30 percent of the area in created or natural openings.
		B. Do not eliminate presence of any browse species.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (05B)	STANDARDS AND GUIDELINES
		C. Provide thermal cover for elk or deer on at lease 20 percent of the area.
		D. Maintain, along 75 percent of all arterial and collector road edges, cover that hides 90% of an adult standing deer or elk from human view at a distance of 200 ft from the road.
		E. In management areas dominated by forested ecosystems, maintain a minimum of 50% of the diversity in deer or elk hiding cover. This hiding cover should be well distributed over the unit. Maintain 30% of the diversity unit in thermal cover (winter or spring-summer). Hiding cover can be used to meet thermal cover requirements if they indeed coincide biologically.
		F. Maintain habitat effectiveness during winter of at least 90 percent.
		G. Maintain habitat capability at a level at least 80 percent of potential capability.
Range Resource Management (D07)	1. Manage grazing to favor big game and to achieve the wildlife populations identified in State-wide comprehensive wildlife plans.	A. Maintain vegetation in fair or range condition. B. Limit livestock use of browse and herbaceous plant production to that not needed by big game. (6173)
	2. Emphasize intensive management of grazing through use of rotation grazing systems.	
Silvicultural Prescriptions (E03, 06 and 07)	1. Manage forest cover types to achieve and maintain desired thermal and hiding cover, cover-opening ratios and other habitat needs associated with tree cover.	
	2. Manage forest cover types using the following harvest methods: -Clearcut in aspen -Shelterwood in ponderosa pine and Engelmann spruce - subalpine fir	

PRACTICES/MIH CODE | MANAGEMENT DIRECTION (05B) | STANDARDS AND GUIDELINES

-Selection (group or single tree) in any forest subtype except aspen
-Clearcut (patch) in dwarf mistletoe infected ponderosa pine and Douglas-fir
-Or as specified in the silvicultural prescription

3. Utilize firewood material using both commercial and noncommercial methods.

4. For management purposes, a cutover area is considered an opening until such time as:
-Forage and/or browse production drops below 40 percent of potential production,
-Deer and elk hiding cover reaches 60 percent of potential,
-Minimum stocking standards by forest cover type and site productivity are met; and
-The area appears as a young forest rather than a restocked opening, and takes on the appearance of the adjoining characteristics landscape.

A. When the Visual Quality Objective of an area is partial retention, the regenerated stand shall meet or exceed all of the following characteristics before a cutover area is no longer considered an opening:

FOREST COVER TYPE	MINIMUM STOCKING LEVEL (TREES/ACRE)	TREE STAND HEIGHT (FEET) 1/
Ponderosa Pine	150 2/	6
Mixed Conifers	150 2/	6
Engelmann Spruce-Subalpine Fir	150 2/	6
Aspen	300	6

FOREST COVER TYPE	CROWN CLOSURE (PERCENT)	DISTRIBUTION 3/
Ponderosa Pine	30	60%
Mixed Conifers	30	60%

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (05B)	STANDARDS AND GUIDELINES
		Engelmann Spruce-Subalpine Fir 30 60% Aspen 30 75% 1/ Applies to trees specified at minimum stocking level 2/ Or as otherwiso specified in the Silvicultural Prescription 3/ Percent of plots or transects that are stocked.
Special Use Mangement (Non-Recreation) (J01)	1. Resolve special uses that conflict with wintering animals.	
Rights-of-Way and Land Adjustments (J02, 13, 15, 16, 17 and 18)	1. Acquire private lands needed for big game winter range.	
Transportation System Management (L01 and 20)	1. Road traffic and road cut or fill slopes must not block big game movement in delineated migration routes or corridors.	
	2. Allow new roads in the management area only if needed to meet priority goals outside the management area or to meet big game goals on the management area. Obliterate temporary roads within one season after planned use ends.	A. New permanent or temporary roads constructed in the management area must meet the following criteria: 1. There is no feasible alternative to build the road outside the area, and the road is essential to achieve priority goals & objectives of contiguous mgt areas, or to provide access to land administered by other Government agencies or to contiguous private land. 2. The Utah DWR has been fully involved in the road location, planning and alternative evaluation. 3. Planned management of road use during winter will prevent or minimize disturbance of wintering big game animals, or will allow hunting or other management activities needed to meet wildlife management objectives.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (05B)	STANDARDS AND GUIDELINES
		4. Roads are constructed to the minimum standards necessary to provide safety for the road use purpose.
		5. Roads cross the winter range in the minimum distance feasible to facilitate the necessary use.
	3. Manage existing roads, prohibit off-road vehicle use and manage non-motorized use to prevent stress on big game animals. (0764)	A. Opening of existing roads during winter can be approved if the following criteria are met:
		1. There is no reasonable alternative for owners or managers of contiguous private land or public land to reach their land during winter.
		2. Road use, off-road vehicle use, or non-motorized use of the area is essential and is the minimum necessary to meet priority resource management goals and objectives.
		3. The Utah DWR is fully involved in planning human use of the area during winter.

MANAGEMENT AREA 6A
LIVESTOCK GRAZING

Characteristics

This management area consists of benchlands, valleys and basins at lower elevations with pinyon-juniper or sagebrush vegetation. Most of these areas have been chained and reseeded. At higher elevations this management area consists of mountain meadows and parks with sage-grass or grass-forb vegetation.

Desired Future Conditions

Acreage of areas receiving this emphasis will remain essentially the same as presently. Production and range condition will be improved. Areas where vegetation manipulation practices have been accomplished will be maintained for optimum forage production. Numbers of livestock improvements (water developments, fences) will increase.

Size

This management area contains 276,600 acres. Two hundred sixty seven three hundred sixty seven acres are unsuitable for timber harvest.

Management Area Direction

The area is managed for livestock grazing. Intensive grazing management systems are favored over extensive systems. Range condition is maintained through use of forage improvement practices, livestock management, and regulation of other resource activities. Periodic heavy forage utilization occurs. Investment in structural and nonstructural range improvements to increase forage utilization is moderate to high. Structural improvements benefit, or at least do not adversely affect wildlife. If conflicts occur between livestock and wildlife in areas of critical wildlife habitat they will be resolved in favor of wildlife. Nonstructural restoration and forage improvement practices available are seeding, planting, burning, fertilizing, pitting, furrowing, spraying, crushing, and plowing. Cutting of encroaching trees may also occur.

Investments are made in compatible resource activities. Dispersed recreational opportunities vary between semi-primitive nonmotorized and roaded natural. Management activities are evident but harmonize and blend with the natural setting.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (06A)	STANDARDS AND GUIDELINES
MANAGEMENT PRESCRIPTION 06A - EMPHASIZE LIVESTOCK GRAZING (INTENSIVE)		
Visual Resource Management (A04)	1. Design and implement management activities to blend with the natural landscape.	A. Do not go below an adopted Visual Quality Objective (VQO) of modification. B. When projects require clearing of vegetation and/or soil disturbance, use irregular clearing edges and shapes to blend with the natural landscapes.
Dispersed Recreation Management (A14 and 15)	1. Semi-primitive nonmotorized, semi-primitive motorized, roaded natural and rural recreation opportunities can be provided.	
	2. Provide roaded natural recreation opportunities within 1/2 mile of Forest arterial, collector and local roads with better than primitive surfaces which are open to public travel. Provide semi-primitive motorized recreation opportunities with a low to moderate incidence of contact with other groups and individuals within one-half mile of designated local roads with primitive surfaces and trails open to motorized recreation use. Where local roads are closed to public motorized recreation travel, provide for dispersed non-motorized recreation opportunities. Manage recreation use to provide for the incidence of contact with other groups and individuals appropriate for the established ROS class. Provide semi-primitive non-motorized recreation opportunities in all areas more than one-half mile away from roads and trails open to motorized recreation use.	A. Maximum use and capacity levels are:

RECREATION USE AND CAPACITY RANGE DURING THE SNOW-FREE PERIOD (PAOT/ACRE)

TRAIL USE AND CAPACITY RANGE (PAOT/MILE OF TRAIL)

USE LEVEL	CAPACITY RANGE VERY LOW	LOW	MOD.	HIGH
ROS CLASS - SEMI-PRIMITIVE NONMOTORIZED				
On Trails PAOT/Mile	2.0	3.0	9.0	11.0
Area-Wide PAOT/Acre	.004	.008	.05	.08
ROS CLASS - SEMI-PRIMITIVE MOTORIZED				
On Trails PAOT/Mile	2.0	3.0	9.0	11.0
Area-Wide PAOT/Acre	.004	.008	.05	.08

ROS CLASS - ROADED NATURAL

On Trails PAOT/Mile	--	--	--	--
Area-Wide PAOT/Acre	.04	.08	1.2	2.5

ROS CLASS - RURAL

On Trails PAOT/Mile	--	--	--	--
Area-Wide PAOT/Acre	.5	.8	5.0	7.5

Reduce the above use level coefficients as necessary to reflect usable acres, patterns of use, general attractiveness of the specific management area type as described in the ROS User's Guide, Chapter 25.

Reduce the above use levels when unacceptable changes to the biophysical resources will occur.

B. Specify off-road vehicle restrictions based on ORV use management (FSM 2355)

C. See FSM 2331, FSM 7732, FSH 7709.12 (Trails Handbook), FSH 7109.11A and 11B (Sign Handbook)

3. Permit undesignated sites in Frissell Condition Class 1 through 3 where unrestricted camping is permitted.

4. Manage site use and occupancy to maintain sites within Frissell Condition Class 3 except for designated sites which may be Class 4. Close and restore Class 5 sites.

5. Prohibit motorized vehicle use off Forest System roads and trails (except snowmobiles operating on snow) in subalpine and other ecosystems where needed to protect soils, vegetation, or special wildlife habitat.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (06A)	STANDARDS AND GUIDELINES
Wildlife and Fish Resource Management (C01)	1. Maintain habitat capability for management indicator species.	A. Maintain habitat capability at 70 percent of potential.
	2. Provide adequate forage to sustain big game population levels agreed to in approved wildlife management plans on NFS lands.	A. When conflicts arise develop utilization standards for big game. Resolve conflicts in favor of big game.
Range Resource Management (D07)	1. On rangeland in less than satisfactory condition, remove livestock when recovery of range condition cannot be accomplished by the grazing system.	
	2. Improve range condition to fair or better.	A. Base range condition on the standards in Range Analysis Handbook (FSH 2209.21).
	3. Invest in cost effective grazing management and associated range improvements.	A. Base economic analysis on Project Effectiveness Analysis Handbook (FSH 2209.11)
	4. Invest in cost effective grazing management and rangeland productivity improvements. Where improvements include water developments, obtain a water right in the name of the United States.	A. Structural improvements will not adversely affect big game movement. B. Reference FSM 2541.23.
Silvicultural Prescriptions (E03, 06 and 07)	1. Maintain and manage forested inclusions to provide a high level of forage production, wildlife habitat, and diversity.	
	2. Manage forest cover types using the following harvest methods: -Clearcut in aspen -Shelterwood in ponderosa pine -Selection in Engelmann spruce and mixed conifers -Clearcut (patch) in dwarf mistletoe infected ponderosa pine -Or as specified in the silvicultural prescription to emphasize livestock grazing.	
	3. Utilize firewood material using both commercial and noncommercial methods.	B. Apply release and weeding as needed to improve visual quality.
	4. For management purposes, a cutover area is considered an opening until such time as: -Forage and/or browse production drops below 40 percent of potential production, -Deer and elk hiding cover reaches 60 percent of potential,	A. When the Visual Quality Objective of an area is partial retention, the regenerated stand shall meet or exceed all of the following characteristics before a cutover area is no longer considered an opening:

-Minimum stocking standards by forest cover type and site productivity are met; and

-The area appears as a young forest rather than a restocked opening, and takes on the appearance of the adjoining characteristics landscape.

FOREST COVER TYPE	MINIMUM STOCKING LEVEL (TREES/ACRE)	TREE STAND HEIGHT (FEET) 1/
Ponderosa Pine	150 2/	6
Mixed Conifers	150 2/	6
Engelmann Spruce-Subalpine Fir	150 2/	6
Aspen	300	6

FOREST COVER TYPE	CROWN CLOSURE (PERCENT)	DISTRIBUTION 3/
Ponderosa Pine	30	60%
Mixed Conifers	30	60%
Engelmann Spruce-Subalpine Fir	30	60%
Aspen	30	75%

1/ Applies to trees specified at minimum stocking level

2/ Or as otherwise specified in the Silvicultural Prescription

3/ Percent of plots or transects that are stocked.

MANAGEMENT AREA 7A
WOOD PRODUCTION AND UTILIZATION

Characteristics

This management area consists of the major Forested areas on the Forest. At lower elevations ponderosa pine is dominant. Mixed conifer species occupy mid elevation while the spruce-fir type is dominant at the highest elevation.

Desired Future Conditions

This management area contains most of the commercial timber on the Forest and is the most highly productive for growing timber.

The basic long-range objectives of timber management for this area are:

1. Create and maintain nearly equal areas in seedlings and saplings, poletimber, immature sawtimber and mature sawtimber.

2. Create and maintain stand conditions that will minimize growth loss and mortality from insects and diseases.

3. Convert slow growing stands of mature sawtimber (beyond culmination of mean annual increment for the product size objective) to young, thrifty stands of desirable species.

These basic objectives, if implemented, will contribute toward the goal of reaching 90 percent of optimum timber growth rates at long-term sustained yield by 2030. The harvest schedule offered by the Preferred Alternative precludes attainment of this goal by 2030 because of the severe departure from the current base sale schedule that would be required. Substantial progress, however, is expected.

Ponderosa Pine Type

Areas of ponderosa pine will be managed almost exclusively through shelterwood methods. Sapling and pole stands will be precommercially thinned to leave between 120 and 150 trees per acre depending on site productivity. Stands of immature sawtimber will receive improvement harvests (intermediate cutting or commercial thinning) once or twice during the 110 to 130 year rotation on a 20 to 40 year entry period. Seed cutting will be done primarily to provide site protection for planted seedlings. These activities will be implemented on a schedule to provide a reasonable balance of acres in each of the age classes in the shortest time possible as constrained in the management area prescription. This balance should be achieved by 2030 with close to 90 percent of the optimum growth rate for most sites realized. Conditions favorable for significant insect and disease losses will be minimized. Small scattered areas of relatively inaccessible ponderosa pine on slopes over 40 percent will likely remain in an unmanaged condition.

Mixed Conifer Type

Species diversity will be lessened over time, as large areas of mistletoe infected Douglas-fir are regenerated. The aspen component of this type is currently in a remnant condition and will not be regenerated by design. Douglas-fir will be the main species planted with some mixture of ponderosa pine on south and west aspects. White fir will decrease in numbers because it likely will not be planted and will not regenerate naturally with removal of seed sources in harvests where Douglas-fir is favored for crop trees. An accelerated regeneration program will be necessary in much of this type. Conversion of the old growth and unevenaged conditions to young, thrifty, even-age stands will help to lessen the current western spruce budworm infestation. Although a balance of acres in each age class may be delayed because of accelerated regeneration, much of this type should reach 90 percent of optimum growth rates by 2030. Most of this type will be managed through shelterwood methods. Significant areas on slopes over 40 percent and isolated areas may remain in an unmanaged condition, depending on sawlog demand and the Forest budget. Insects and diseases should be at endemic levels in managed areas of this type by 2030.

Spruce-fir Type

Management objectives will be directed toward improving three basic situations: tomentosis root rot, low value species (subalpine fir and aspen) and conversion of old growth to young, thrifty stands. The extent of root rot is not known, but it is a potentially serious problem on portions of the Forest. Possible solutions to the root rot problem include removal of stumps of infected trees or growing a crop of aspen before Engelmann spruce is regenerated. A mosaic of clearcuts regenerated immediately to spruce and some to aspen will probably result in areas where the problems are severe enough to require treatment.

Where root rot is not a problem, old growth overstories will be removed, usually on a two-stage schedule. These stands will either be regenerated in conjunction with the final overstory removal or become stands of thrifty immature sawtimber and/or advanced regeneration, depending on what is present in the understory. Creation and maintenance of evenaged stands will be the general objective where possible. Site conditions and mitigation for other resource values will cause some stands to remain in an unevenage or multi-storied condition.

As in the mixed conifer type, species diversity will be reduced over time as the remnant interspersed aspen and subalpine fir become a smaller part of the species mixture.

Aspen Type

Where aspen occurs in pure stands of manageable size, aspen will generally be perpetuated by prescribed clearcutting and natural regeneration. Some small decadent stands incapable of sprouting may be regenerated to conifers. Where aspen stands are not conducive to management for commercial wood products or during periods of low demand for aspen products, wildlife habitat or visual quality objectives will be used to develop prescribed treatments. Demand for aspen wood products has been sporadic at best and this factor will have the most influence on management of the larger stands and attainment of 90 percent of optimum growth rates and a balance of age classes by 2030.

Size

This management area contains 270,400 acres. Fifty one thousand seven hundred seven acres are unsuitable for timber harvest.

Management Area Direction

Management emphasis is on wood-fiber production and utilization of large roundwood of a size and quality suitable for sawtimber. The harvest method by Forest cover type is clearcutting in aspen, and Engelmann spruce-subalpine fir, and shelterwood in ponderosa pine and mixed conifers.

The area generally will have a mosaic of fully stocked stands that follow natural patterns and avoid straight lines and geometric shapes. Management activities are not evident or remain visually subordinate along Forest arterial and collector roads and primary trails. In other portions of the area, management activities may dominate in foreground and middleground, but harmonize and blend with the natural setting.

Roaded-natural recreation opportunities are provided along Forest arterial and collector roads. Semi-primitive motorized recreation opportunities are provided on those local roads and trails that remain open, semiprimitive nonmotorized opportunities are provided on those that are closed.

PRACTICES	MIH CODE	MANAGEMENT DIRECTION	STANDARDS AND GUIDELINES
MANAGEMENT PRESCRIPTION 07A - EMPHASIZE WOOD FIBER PRODUCTION AND UTILIZATION			
Visual Resource Management (A04)		1. Meet stated visual quality objective.	A. Do not go below an adopted visual quality objective (VQO) of: Partial retention within the foreground of arterial/collector roads and primary trails. Modification on all other areas. B. Apply rehabilitation practice where the above objectives are now currently being met.
Dispersed Recreation Management (A14 and 15)		1. Semi-primitive nonmotorized, semi-primitive motorized, roaded natural and rural recreation opportunities can be provided. 2. Provide roaded natural recreation opportunities within 1/2 mile of forest arterial, collector and local roads with better than primitive surfaces which are open to public travel. Provide semi-primitive motorized recreation opportunities with a low to moderate incidence of contact with other groups and individuals within 1/2 mile of designated local roads with primitive surfaces and trails open to motorized recreation use. Where local roads are closed to public motorized recreation travel, provide for dispersed non-motorized recreation opportunities. Manage recreation use to provide for the incidence of contact with other groups and individuals appropriate for the established ROS Class. Provide semi-primitive non-motorized recreation opportunities in all areas more than 1/2 mile away from roads and trails open to motorized recreation use.	A. Maximum use and capacity levels are: Recreation use and capacity range during the snow-free period (PAOT/Acre). Trail use and capacity range (PAOT/Mile of trail).

Capacity Range

Use Level	Very Low	Low	Moderate	High
ROS Class - Semi-Primitive Nonmotorized				
On trails PAOT/Mile	2.0	3.0	9.0	11.0
Area-wide PAOT/Acre	.004	.008	.05	.
ROS Class - Semi-Primitive Motorized				
On trails PAOT/Mile	2.0	3.0	9.0	11.0
Area-wide PAOT/Acre	.004	.008	.05	.

ROS Class - Roaded Natural				
On trails PAOT/Mile	--	--	--	--
Area-wide PAOT/Acre	.04	.08	1.2	2.
ROS Class - Rural				
On trails PAOT/Mile	--	--	--	--
Area-wide PAOT/Acre	.5	.8	5.0	7.

Reduce the above use level coefficients as necessary to reflect usable acres, patterns of use, general attractiveness of the specific management area type as described in the ROS Users Guide, Chapter 25.

Reduce the above use levels when unacceptable changes to the biophysical resources will occur.

B. Specify off-road vehicle restrictions based on ORV Use Management (FSM 2355).

C. See FSM 2331, FSM 7732, FSH 7709.12 (Trails Handbook), GSH 7109.11A and 11B (Sign Handbook).

3. Permit undesignated sites in Frissell condition Class 1 through 3 where unrestricted camping is permitted.

4. Manage site use and occupancy to maintain sites within Frissell condition Class 3 except for designated sites which may be Class 4. Close and restore Class 5 sites.

5. Prohibit motorized vehicle use off-forest system roads and trails (except snowmobiles operating on snow) in other subalpine, and other ecosystems, where needed to protect soils, vegetation, or special wildlife habitat.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (07A)	STANDARDS AND GUIDELINES
Range Improvement and Maintenance (D03, 04, 05 and 06)	1. Utilize transitory forage that is available where demand exists, and where investments in regeneration can be protected.	A. Vary utilization standards with grazing system and ecological condition. Specify standards in the allotment management plan. B. Maximum grazing use on transitory ranges resulting from clear cuts is: -Grasses 50 percent of current growth.
	2. Protect regeneration from livestock damage.	
Silvicultural Prescriptions (E03, E05, 06 and 07)	1. Manage forest cover types using the following harvest methods: -Clearcut in aspen, and when appropriate in Engelmann spruce-subalpine fir. -Shelterwood in ponderosa pine, mixed conifer, and Engelmann spruce-subalpine fir. -Selection (tree/group) in any forest type except aspen. -Clearcut (patch) in dwarf mistletoe infected ponderosa pine and Douglas-fir. -Or as specified in the silvicultural prescription. _Exercise special care when dealing with high elevation species (ex. Boulder Top.)	
	2. Clearcuts may be applied to dwarf mistletoe infected stands of any forest cover type.	
	3. Apply intermediate treatments to maintain growing stock level standards as specified in the silvicultural prescription.	
	4. Utilize firewood material using both commercial and noncommercial methods.	
	5. For management purposes, a cut-over area is considered an opening until such time as: -Forage and/or browse production drops below 40% of potential production; -Deer and elk hiding cover reaches 60 % of potential; -Minimum stocking standards by forest cover type and site productivity are met; and -The area appears as a young forest rather than a restocked opening, and takes on the appearance of the adjoining characteristic landscape.	A. When the visual quality objective of an area is modification or maximum modification the regenerated stand shall meet or exceed all of the following characteristics before a cut-over area is no longer considered an opening:

Forest Cover Type	Minimum Stocking Level (Trees/ Acre	Tree Stand Height (ft.) 1/

PRACTICES/MIH CODE | MANAGEMENT DIRECTION (07A) | STANDARDS AND GUIDELINES

Inland ponderosa pine	150 2/	6
Mixed conifers	150 2/	6
Engelmann spruce - subalpine fir	150 2/	6
Aspen	300	6

Forest Cover Type	Crown Closure (percent)	Distribution
Inland ponderosa pine	30	60%
Mixed conifers	30	60%
Engelmann spruce - subalpine fir	30	60%
Aspen	30	75%

1/ Applies to trees specified at minimum stocking level.

2/ Or as otherwise specified in the silvicultural prescription.

3/ Percent of plots or transects that are stocked. (6014)

MANAGEMENT AREA 8A
WILDERNESS

Characteristics

This management area consists of the Pine Valley Mountain Wilderness, the Ashdown Gorge Wilderness and the Box-Death Hollow Wilderness.

Size

This management area contains 83,000 acres.

Management Area Direction

Management emphasis is to provide for the protection and perpetuation of essentially natural bio-physical conditions. Solitude and a low level of encounters with other users or evidence of past use is an essential part of the social setting. Human travel, though not restricted to, is principally on system trails. Popular campsites show evidence of repeated but acceptable levels of use. Minimum impact camping techniques will be encouraged.

Past resource management activities have been managed in such a way that current human use has left only limited site-specific evidence of their passing. Areas with evidence of unacceptable levels of past use will be rehabilitated and the affected area restored. Range allotments with authorized permanent structures may be present within the area. Scientific and other authorized practices utilizing nonmotorized equipment, but requiring up to season-long occupancy are compatible.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (08A)	STANDARDS AND GUIDELINES
MANAGEMENT PRESCRIPTION 08A - PROVIDE FOR SEMI-PRIMITIVE WILDERNESS OPPORTUNITIES		
Visual Resource	1. Manage for maximum retention of the natural landscape Design and locate management activities to meet the visual quality objective of preservation in all areas except where specific surface occupancy is authorized by wilderness legislation. In these areas, the visual quality objective is retention.	
Dispersed Recreation Management (A14 and 15)	1. Provide wilderness recreation opportunities requiring predominately unmodified natural settings, with a moderate to high degree of challenge and risk while traveling cross-country or on trails.	
	2. Prohibit open fires in subalpine, meadow areas and within riparian areas when: A. Use of dead and down wood for fuel is likely to violate diversity requirements, soil nutrient and erosion protection, or B. Visual resource objectives for the area likely could not be met.	
	3. Permit undesignated sites in Frissell Condition Class 1 through 3 where unrestricted camping is permitted.	
	4. Manage site use and occupancy to maintain sites within Frissell Condition Class 3 except for undesignated sites which may be Class 4. Close and restore Class 5 sites.	
	5. Manage summer use to allow low to moderate contact with other groups and individuals.	A. Area-wide capacity: .02 PAOT/Acre) Open Lands Subalpine, Rock, Mountain Grass Forest and Shrub Lands Ponderosa Pine, Douglas-fir, riparian areas, spruce/fir, aspen B. Maximum use and capacity levels -Trail and camp encounter during peak use days are less than 20 other parties per day.

<table>
<tr><th>PRACTICES/MIH CODE</th><th>MANAGEMENT DIRECTION (08A)</th><th>STANDARDS AND GUIDELINES</th></tr>
<tr><td></td><td></td><td>-Trail capacity is displayed below:
<table>
<tr><th>Use Level</th><th>Open Lands</th><th>Forest & Shrub Land</th></tr>
<tr><td>On Trails (PAOT/Mile)</td><td>2-3</td><td>9-11</td></tr>
</table></td></tr>
<tr><td></td><td>6. Reduce visitor use when the level of use exceeds capacity for more than 20 percent of the summer use season.</td><td></td></tr>
<tr><td></td><td>7. Permits for parties larger than the established limit may be used when their presence can be adequately screened from the sights and sounds of other parties in the area.</td><td></td></tr>
<tr><td></td><td>8. Manage location of campsites to provide a moderate degree of solitude.</td><td>A. Locate campsites at least 300 feet apart.
B. Occupied site guidelines: (Maximum number of sites occupied at one time.)
<table>
<tr><td>Lakes</td><td><5 Acres</td><td>2</td></tr>
<tr><td></td><td>5-25 Acres</td><td>3</td></tr>
<tr><td></td><td>>25 Acres</td><td>4</td></tr>
<tr><td>Streams and Trails</td><td></td><td></td></tr>
<tr><td>Open areas</td><td></td><td>2 sites/mile</td></tr>
<tr><td>Forested areas</td><td></td><td>4 sites/mile</td></tr>
</table></td></tr>
<tr><td></td><td>9. Manage site use and occupants to maintain sites within Frissell Condition Class 3.</td><td>A. Allow sites to be occupied 20 days during summer season or to the level required to maintain at least a stable trend in site condition.
B. Close and restore Frissell Condition Class 4 & 5</td></tr>
<tr><td>sites.</td><td>es.</td><td></td></tr>
<tr><td>Recreation Management (Private and other public sector) (A16)</td><td>1. Manage outfitter-guide operations in the same manner as other visitors. Permit camping only in sites specified in outfitter-guide permits. Keep outfitter-guide activities harmonious with activities of non-guided visitors. Include outfitter-guide operations in calculations of level-of-use capacities.</td><td></td></tr>
<tr><td>Range Resource Management (D07)</td><td>1. Manage livestock and herbivorous wildlife forage use in accordance with FSM 2320.3 (36 CFR 293.7).</td><td>A. Follow established utilization standards for areas within grazing allotments.</td></tr>
</table>

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (08A)	STANDARDS AND GUIDELINES
		B. Range management activities must be in accordance with the wilderness designation and in conformance with the Congressional Committee Guidelines outlined in FSM 2323.2.
Special Use Management (Non-Recreation) (J01)	1. Manage surface occupants activities authorized prior to wilderness designation to reduce impact on wilderness values consistent with the intent of the occupancy authorization.	
	2. Permit only those uses authorized by wilderness legislation, which cannot be reasonably met on non-wilderness lands.	
Transportation System Management (L01 and 20)	1. Locate and design required access roads outside the management area for authorized activities to minimize the biophysical and visual impact, and to facilitate restoration.	A. Roads will not be authoized: -On slopes steeper that 60 percent; -In areas of high erosion hazard; -In areas of high geologic hazard; -In areas of low visual absorption capacity that are unlikely for successful restoration; -In areas which would adversely affect threatened and endangered plan and animal species.
	2. Convert roads not needed for authorized activities to trails, or if they are not needed as part of the transportation system, restore them to the established VQO.	A. Maintain trails in accordance with standards in the Trail Handbook (FSH 7709.12)
	3. Construct or reconstruct trails only when needed to meet objectives of the wilderness transportation system.	A. Follow standards specified in FSH 7709.12, FSM 2323.110 and 2323.610. B. Trail density will not exceed two miles per square mile. Trails are constructed and maintained to high levels of use and specified below.
	4. Construct bridges to only the standard necessary to accommodate the specified class of user. Construct bridges only where no safe opportunity exists to cross a stream or gorge during periods of normal stream flow.	
	5. Use corduroy and/or puncheon treads across bogs where no safe and feasible bypass opportunity exists.	
	6. Close or sign system trails when not maintained to the safe standard for the specified use.	A. Maintain trails in accordance with standards in the Trail Handbook FSH 7709.12.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (08A)	STANDARDS AND GUIDELINES
	7. Use signs of unstained wood with routed letters and mounted on unstained posts.	A. Follow standards specified in FSH 7109.11A and 113.
	8. Provide signs at trail terminals and trail junctions only. Include only trail identification and identification of terminal points.	
FA&O Construction, Reconstruction and Maintenance (L24 and 25)	1. Prohibit construction of new administrative facilities or structures. In the event a substantial portion of the existing administrative facility and/or structure is destroyed, it will not be replaced.	
Protection (P01, 09 & 34)	1. The wilderness management plan will detail when, where and how natural fires may be allowed to burn. Natural fire prescriptions must be approved by the Regional Forester.	A. Fires resulting from man and his activities must be prevented and/or controlled unless they have been approved by the Regional Forester. Naturally occurring fires will be allowed to more fully play their natural role in the ecology of the area.
	2. Conduct forest pest management activities in wilderness areas only to prevent the unnatural loss of the wilderness resource or to protect timber and other valuable resources adjacent to the wilderness (FSM 2324.1, 3408.1).	
Mineral Management Oil, Gas and Geothermal	1. Issue no new leases.	
Common Variety (Saleable)	1. Issue no permits.	
Locatables	1. Withdrawn from mining entry. No new claims can be located.	A. Recognize valid existing rights could exist on claims located prior to w/d - Administer acc. to Wild. Act and 2810 regs for wilderness (CFR 228 etc.) B. All NOI - too veg. validity exam. prior to approval.

MANAGEMENT AREA 8A1
ANTONE BENCH

Characteristics

This management area consists of the Antone Bench area excluded from the Box Death Hollow Wilderness.

Desired Future Condition

This area is to be managed to provide a natural or natural appearing environment. The concentration of users will be low, but there will often be evidence of others present.

Size

This management area contains approximately 1600 acres.

Management Area Direction

All lands are withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to mineral and geothermal leasing. The area is open to competitive leasing of carbon dioxide until 1989. Any construction for the purpose of extracting carbon dioxide will be limited to the minimum standard necessary for its proper development. Any roads, trails, pipelines, electrical lines, buildings, compressor stations, and other facilities shall to the maximum extent practicable consistent with the economic extraction of CO_2, be camouflaged, constructed and located in a manner than will minimize visual, noise or other intrusions in the area and the surrounding wilderness area.

MANAGEMENT PRESCRIPTION 8A1 - PROVIDE FOR SEMI-PRIMITIVE RECREATION OPPORTUNITIES FOR ANTONE BENCH, BOX DEATH HOLLOW

Visual Resource

1. Manage for retention of the visual appearance of the natural landscape. Management activities will be designed to meet visual quality objective of retention as it is seen from travel routes within the area.

Dispersed Recreation
Management
(A14 and 15)

1. Provide semi-primitive recreation opportunities requiring predominately unmodified natural settings, with a moderate to high degree of challenge and risk while traveling cross-country or on trails.

2. Permit undesignated sites in Frissell Condition Class 1 through 3 where unrestricted camping is permitted.

3. Manage site use and occupancy to maintain sites within Frissell Condition Class 3 except for designated sites which may be Class 4. Close and restore Class 5 sites.

4. Manage summer use to allow low to moderate contact with other groups and individuals.

A. Area-wide capacity: .02 PAOT/Acre)
Open Lands
  Subalpine, Rock, Mountain Grass
Forest and Shrub Lands
  Ponderosa Pine, Douglas-fir, riparian areas, spruce/fir, aspen

B. Maximum use and capacity levels
-Trail and camp encounter during park use days are less than 20 other parties per day.
-Trail capacity is displayed below:

Use Level	Open Lands	Forest & Shrub Land
On Trails (PAOT/Mile)	2-3	9-11

5. Reduce visitor use by going to a permit system when the level of use exceeds capacity for more than 20 percent of the summer use season, or resource damage is greater than desired.

6. Manage location of campsites to provide a moderate degree of solitude.

A. Locate campsites at least 300 feet apart.

B. Occupied site guidelines: (Maximum number of sites occupied at one time.)

Streams and Trails

Open areas	2 sites/mile
Forested areas	4 sites/mile

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (8A1)	STANDARDS AND GUIDELINES
Range Resource Management (D07)	1. Manage livestock to prevent conflict with dispersed recreation opportunities.	A. Follow established utilization standards for areas within grazing allotments.
Special Use Management (Non-Recreation) (J01)	1. Manage surface occupancy activities to meet retention or minimum, a partial retention visual quality objective.	
	2. Permit only those activities that cannot be located outside the area.	
Mineral Management - Oil, Gas and Geothermal (G02 and 04)	1. All lands are withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to mineral and geothermal leasing and all amendments thereto, except that competitive leases for carbon dioxide can be issued for a period of five years from the date of enactment of the Utah Wilderness Act. (PL 98-428)	
	2. A lease issued for carbon dioxide shall be for a period of 10 years and for so long thereafter as carbon dioxide is produced annually in commercial quantities from that lease.	
	3. An area covered by a lease shall be withdrawn from further carbon dioxide leasing or lease extension in the event production in commercial quantities from the lease is not occurring within 10 years of the date of issuance of the lease.	
	4. Exploration shall be permitted only by helicopter or other methods which do not involve road construction or other significant surface disturbance.	
	5. In the event development of a lease is proposed, the following provisions shall apply:	
	A. Road construction shall be limited to the minimum standards necessary for proper development of the carbon dioxide resource consistent with safety requirements.	
	B. Roads, pipelines, electric lines, buildings, compressor stations and other facilities shall, to the maximum extent practicable consistent with economic extraction of the carbon dioxide resource, be camouflaged constructed and located in a manner that will minimize visual, noise, or other intrusions in the area and in the surrounding wilderness area.	
	C. Fill material, gravel and other material used for road and facility construction shall be obtained from outside the wilderness area.	

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (8A1)	STANDARDS AND GUIDELINES
	D. Road or facility construction shall be limited, to the maximum extent practicable, to seasons or periods where there will be minimum impacts on recreation or wildlife uses.	
	E. Roads shall be used only in conjunction with carbon dioxide development operations and shall be closed to all other vehicular use, but shall be open for foot or horse travel.	
	F. All roads or other facilities within the area shall, when no longer needed for carbon dioxide production, be removed and reclaimed to a condition of being substantially unnoticeable.	
	G. All waste, debris or other by-products associated with road construction, carbon dioxide production, or other development activities shall be disposed of outside the Antone Bench area and the Box Death Hollow Wilderness.	
	H. Consistent with State and Federal law no activities shall be allowed which could significantly impair water quality or quantity in the Box Death Hollow Wilderness.	
Transportation System Management (L01 and 20)	1. Locate and design required access roads inside the management area for authorized activities to minimize the biophysical and visual impact, and to facilitate restoration.	A. Roads will not be authorized: -On slopes steeper that 60 percent; -In areas of high erosion hazard; -In areas of high geologic hazard; -In areas of low visual absorption capacity that are unlikely for successful restoration; -In areas which would adversely affect threatened and endangered plan and animal species.
	2. Convert roads not needed for authorized activities to trails, or if they are not needed as part of the transportation system, restore them to the established VQO.	A. Maintain trails in accordance with standards in the Trail Handbook (FSH 7709.12)
	3. Construct or reconstruct trails only when needed to meet objectives of the transportation system.	A. Follow standards specified in FSH 7709.12, FSM 2323.110 and 2323.610. B. Trail density will not exceed 2 miles per square mile. Trails are constructed and maintained for moderate to high levels of use and specified below.
	4. Construct bridges to only the standard necessary to accommodate the specified class of user. Construct bridges only where no safe opportunity exists to cross a stream or gorge during periods of normal stream flow.	

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (8A1)	STANDARDS AND GUIDELINES
	5. Use corduroy and/or puncheon treads across bogs where no safe and feasible bypass opportunity exists.	
	6. Close or sign system trails when not maintained to the safe standard for the specified use.	A. Maintain trails in accordance with standards in the Trail Handbook FSH 7709.12.
	7. Use signs of unstained wood with routed letters and mounted on unstained posts.	A. Follow standards specified in FSH 7109.11A and 113.
	8. Provide signs at trail terminals and trail junctions only. Include only trail identification and identification of terminal points.	
FA&O Construction, Reconstruction and Maintenance (L24 and 25)	1. Prohibit construction of new administrative facilities or structures. In the event a substantial portion of the existing administrative facility and/or structure is destroyed, it will not be replaced.	
Protection (P01, 09 & 34)	1. The management plan will detail where and how natural fires may be allowed to burn. Natural fire prescriptions must be approved by the Regional Forester	A. Fires resulting from man and his activities must be prevented and/or controlled unless they have been approved by the Regional Forester. Naturally occurring fires will be allowed to more fully play their natural role in the ecology of the area.
	2. Conduct forest pest management activities only to prevent the unnatural loss of the resource or to protect timber and other valuable resources.	

MANAGEMENT AREA 8A2
BOX DEATH HOLLOW

Characteristics

This management area consists of the areas excluded from the Box Death Hollow area, not including Antone Bench.

Desired Future Conditions

Maintenace of the natural or natural appearing environment. The natural setting may have subtle modifications that may be noticed but not draw the attention of an observer wandering through the area.

Size

This management area contains approximately 2200 acres.

Management Area Direction

Management emphasis is for the potential leasing and development of carbon dioxide gas in the area. The area will be withdrawn from all other forms of appropriation under the mining laws and from disposition under all laws pertaining to mineral and geothermal leasings. Carbon dioxide leasing in the area will be for a period of 10 years and for as long thereafter as carbon dioxide is produced annually in commercial quantities from the lease. At the end of 10 years, if no leases are producing commercial quantities of carbon dioxide, all leases will be closed. The effect of all management activities will be rehabilitated to bring the environment back to the condition it was in before the activity was introduced or as near to the natural condition as management feels can be achieved.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (8A2)	STANDARDS AND GUIDELINES
MANAGEMENT PRESCRIPTION 8A2 - PROVIDE FOR SEMI-PRIMITIVE RECREATION OPPORTUNITIES FOR WILDERNESS EXCLUSION AREAS, BOX DEATH HOLLOW		
Visual Resource	1. Manage for retention of the visual appearance of the natural landscape. Management activities will be designed to meet a visual quality objective of retention as it is seem from travel routes within the area.	
Dispersed Recreation Management (A14 and 15)	1. Provide semi-primitive recreation opportunities requiring predominately unmodified natural settings, with a moderate to high degree of challenge and risk while traveling cross-country or on trails.	
	2. Permit undesignated sites in Frissell Condition Class 1 through 3 where unrestricted camping is permitted.	
	3. Manage site use and occupancy to maintain sites within Frissell Condition Class 3 except for designated sites which may be Class 4. Close and restore Class 5 sites.	
	4. Manage summer use to allow low to moderate contact with other groups and individuals.	A. Area-wide capacity: PAOT/Acre) Open Lands Subalpine, Rock, Mountain Grass Forest and Shrub Lands Ponderosa Pine, Douglas-fir, riparian areas, spruce/fir, aspen B. Maximum use and capacity levels -Trail and camp encounter during park use days are less than 20 other parties per day. -Trail capacity is displayed below: Use Level / Open Lands / Forest & Shrub Land On Trails (PAOT/Mile) / 2-3 / 9-11
	5. Reduce visitor use when the level of use exceeds capacity for more than 20 percent of the summer use season.	
	6. Manage location of campsites to provide a moderate degree of solitude.	A. Locate campsites at least 300 feet apart. B. Occupied site guidelines: (Maximum number of sites occupied at one time.) Streams and Trails Open areas 2 sites/mile Forested areas 4 sites/mile

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (8A2)	STANDARDS AND GUIDELINES
Range Resource Management (D07)	1. Manage livestock to prevent conflict with dispersed recreation opportunities.	A. Follow established utilization standards for areas within grazing allotments.
Special Use Management (Non-Recreation) (J01)	1. Manage surface occupancy activities to meet retention on, at the minimum, a partial retention visual quality objective.	
	2. Permit only those activities that cannot be located outside the area.	
Mineral Management - Oil, Gas and Geothermal (G02 and 04)	1. All lands are withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to mineral and geothermal leasing and all amendments thereto, except that competitive leases for carbon dioxide can be issued for a period of five years from the date of enactment of the Utah Wilderness Act. (PL 98-428)	
	2. A lease issued for carbon dioxide shall be for a period of 10 years and for so long thereafter as carbon dioxide is produced annually in commercial quantities from that lease.	
	3. The area will be managed in a manner in conformity with the management of the general area.	
Transportation System Management (L01 and 20)	1. Locate and design required access roads for authorized activities to minimize the biophysical and visual impact, and to facilitate restoration.	A. Roads will not be authorized: -On slopes steeper that 60 percent; -In areas of high erosion hazard; -In areas of high geologic hazard; -In areas of low visual absorption capacity that are unlikely for successful restoration; -In areas which would adversely affect threatened and endangered plan and animal species.
	2. Convert roads not needed for authorized activities to trails, or if they are not needed as part of the transportation system, restore them to the established VQO.	A. Maintain trails in accordance with standards in the Trail Handbook (FSH 7709.12)
	3. Construct or reconstruct trails only when needed to meet objectives of the wilderness transportation system.	A. Follow standards specified in FSH 7709.12, FSM 2323.110 and 2323.610. B. Trail density will not exceed 2 miles per square mile. Trails are constructed and maintained for moderate to high levels of use and specified below.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (8A2)	STANDARDS AND GUIDELINES
	4. Construct bridges to only the standard necessary to accommodate the specified class of user. Construct bridges only where no safe opportunity exists to cross a stream or gorge during periods of normal stream flow.	
	5. Use corduroy and/or puncheon treads across bogs where no safe and feasible bypass opportunity exists.	
	6. Close or sign system trails when not maintained to the safe standard for the specified use.	A. Maintain trails in accordance with standards in the Trail Handbook FSH 7709.12.
	7. Use signs of unstained wood with routed letters and mounted on unstained posts.	A. Follow standards specified in FSH 7109.11A and 113.
	8. Provide signs at trail terminals and trail junctions only. Include only trail identification and identification of terminal points.	
FA&O Construction, Reconstruction and Maintenance (L24 and 25)	1. Prohibit construction of new administrative facilities or structures. In the event a substantial portion of the existing administrative facility and/or structure is destroyed, it will not be replaced.	
Protection (P01, 09 & 34)	1. The management plan will detail when, where and how natural fires may be allowed to burn. Natural fire prescriptions must be approved by the Regional Forester.	B. Trail density will not exceed miles A. Fires resulting from man and his activities must be prevented and/or controlled at all times. Naturally occurring fires will be allowed to more fully play their natural role in the ecology of the area.
	2. Conduct forest pest management activities only to prevent the unnatural loss of the resource or to protect timber and other valuable resources adjacent to the wilderness (FSM 2324.1, 3408.1).	

MANAGEMENT AREA 9A
RIPARIAN MANAGEMENT

Characteristics

This management area is located adjacent to perennial streams and across the Forest. Components of the area include the aquatic ecosystem, the riparian ecosystem (characterized by distinct vegetation), and adjacent ecosystems that are within approximately 100 feet measured horizontally from both edges of perennial streams and from the shores of lakes and other still water bodies. All of the components are managed together as a land unit comprising an integrated riparian area, and not as separate components.

Desired Future Condition

Riparian area acreage remains essentially the same as currently exists. Riparian ecosystem remains healthy and viable. Sufficient habitat remains to support at least minimum viable populations of riparian dependent wildlife species. Water quality is not impaired below existing levels and is improved in some areas. Stream channel stability is maintained or, in areas where it is severely degraded, is improved to least minimally acceptable standards. Area provides multiple resource outputs while providing protection to riparian dependent values.

Size

This management area contains 9100 acres. Eight thousand fifty two acres are unsuitable for timber harvest.

Management Area Direction

The goals of management are to provide healthy, self-perpetuating plant communities, meet water quality standards, provide habitats for viable populations of wildlife and fish, and provide stable stream channels and still water body shorelines. The aquatic ecosystem may contain fisheries habitat improvement and channel stabilizing facilities that harmonize with the visual setting and maintain or improve wildlife or fish habitat.

Forest riparian ecosystems are treated to improve wildlife and fish habitat diversity through specified silvicultural objectives. Timber harvest and other vegetation treatments are used to achieve multi-resource benefits emphasizing riparian values.

Livestock grazing is at a level that will assure maintenance of the vigor and regenerative capacity of the riparian plant communities. Developed recreation and other facility construction for overnight use is restricted or modified within the 100-year floodplain. Dispersed recreation will be managed to maintain ecological stability and visual objectives of the management area.

The management area over which this prescription is to be applied will also be affected by several management activities in the Forest-wide direction. Most notable is the direction involving riparian area management, upland zones, water uses management, water resource improvement and maintenance, dam administration and maintenance, and elsewhere.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION	STANDARDS AND GUIDELINES
MANAGEMENT PRESCRIPTION 09A - EMPHASIZE RIPARIAN AREA MANAGEMENT		
Visual Resource Management (A04)	1. Design and implement management activities which sustain inherent visual values of riparian areas and blend with the surrounding natural landscapes.	A. Do not go below an adopted visual quality objective (VQO) of partial retention.
Dispersed Recreation Management (A14 and 15)	1. Semi-primitive nonmotorized, semi-primitive motorized, roaded natural and rural recreation opportunities can be provided.	
	2. Provide roaded natural recreation opportunities within 1/2 mile of Forest arterial, collector and local roads with better than primitive surfaces which are open to public travel. Provide semi-primitive motorized recreation opportunities with a low to moderate incidence of contact with other groups and individuals within 1/2 mile of designated local roads with primitive surfaces and trails open to motorized recreation use. Where local roads are closed to public motorized recreation travel, provide for dispersed non-motorized recreation opportunities. Manage recreation use to provide for the incidence of contact with other groups and individuals appropriate for the established ROS class. Provide semi-primitive non-motorized recreation opportunities in all areas more than 1/2 mile away from roads and trails open to motorized recreation use.	A. Maximum use and capacity levels are: Recreation use and capacity range during the snow-free period (PAOT/ACRE) Trail use and capacity range (PAOT/Mile of trail)

Capacity Range

Use Level	Very Low	Low	Moderate	High
ROS Class - Semi-primitive nonmotorized				
On Trails PAOT/Mile	2.0	3.0	9.0	11.0
Area-wide PAOT/Acre	.004	.008	.05	.08
ROS Class - Semi-primitive motorized				
On Trails PAOT/Mile	2.0	3.0	9.0	11.0
Area-wide PAOT/Acre	.004	.008	.05	.08
ROS Class - Roaded Natural				

On Trails
PAOT/Mile

Area-wide .04 .08 1.2 2.
PAOT/Acre

ROS Class - Rural

On Trails
PAOT/Mile

Area-wide .5 .8 5.0 7.
PAOT/Acre

Reduce the above use level coefficients as necessary to reflect useable acres, patterns of use, general attractiveness of the specific management area type described in the ROS Users Guide, Chapter 25.

Reduce the above user levels when unacceptable changes to the biophysical resources will occur.

B. Specify off-road vehicle restrictions based on ORV Use Management (FSM 2355).

C. See FSM 2331, FSM 7732, FSH 7709.12 (Trails Handbook), FSH 7109.11A and 11B (Sign Handbook).

3. Permit undesignated sites in Frissell condition Class 1 through 2 where unrestricted camping is permitted.

4. Manage site use and occupancy to maintain sites within Frissell condition Class 2 except for designated sites which may be Class 3 or 4. Close and restore Class 5 sites.

5. Prohibit motorized vehicle use off forest system roads and trails (except snowmobiles operating on snow) in subalpine, and other ecosystems, where needed to protect soils, vegetation, or special wildlife habitat.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (09A)	STANDARDS AND GUIDELINES
Wildlife Habitat Improvement Maintenance (C02, 04, 05, and 06)	1. Provide habitat to meet or exceed DWR population goals for all aquatic vertebrate species.	A. Where natural biologic and geologic conditions will allow, maintain or improve overall stream habitat condition at or above 50 percent of optimum (use R-4 GAWS Aquatic Habitat Surveys Handbook).
	2. Coordinate Lake and stream habitat improvement projects with the Utah DWR where aquatic habitats are below productive potential.	
	3. Maintain instream flows and obtain conservation pools in cooperation with Utah DWR to support a sustained yield of natural fisheries resources,	
Range Resource Management (D07)	1. Maintain proper stocking and livestock distribution to protect riparian ecosystems,	A. Livestock grazing in riparian areas will be controlled at the following levels of utilization:
	2. Prohibit trailing of livestock along the length of riparian areas except where existing stock driveways occur. Rehabilitate existing stock driveways where damage is occurring in riparian areas if possible, and if necessary to achieve riparian-area goals,	

Vegetative Type	Grazing System	Vegetation Condition Class	Total Forage Utilization by Wt.
Grass/Grass-like Forb/Willow			
	Rest-Rotation	Use up to[1]	60%
	Defer-Rotation	Use up to[2]	50%
			35%

[1] Trampled areas and streambank damage caused during use year should be healed or stabilized within the following rest year.

Browse utilization within the riparian ecosystem will not exceed 50% of new leader production.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (09A)	STANDARDS AND GUIDELINES
Silvicultural Prescriptions (E03,05, 06 & 07)	1. Manage Forest cover types to perpetuate tree cover and provide healthy stands, high water quality and wildlife and fish habitat.	
	2. Manage forest cover types using the following harvest methods: -Clearcut in aspen -Selection (group or single tree in all other cover types -Shelterwood in ponderosa pine and mixed conifers -Small patch clearcuts may be used in mistletoe infected ponderosa pine and Douglas-fir -Or as specified in the silvicultural prescription	
	3. Apply intermediate treatments to maintain growing stock level standards as specified in the silvicultural prescription.	
	4. Establish a satisfactory stand either naturally or through artificial regeneration methods within a five-year period after disturbance.	
	5. Prohibit log landing and decking areas within the riparian area.	
	7. Limit skidding equipment within the riparian area. Do not skid logs across live stream channels or wetlands.	
	8. Reduce debris jam potential by cutting stumps to near ground level in the 100-year floodplain.	
	9. For management purposes, a cut-over area is considered an opening until such time as: - Forage and/or browse production drops below 40% of potential production; - Deer and elk hiding cover reaches 60% of potential; - Minimum stocking standards by Forest cover type and site productivity are met; and - The area appears as a young Forest rather than a restocked opening, and takes on the appearance of the adjoining characteristic landscape.	A. When the visual quality objective of an area is partial retention, the regenerated stand shall meet or exceed all of the following characteristics before a cutover area is no longer considered an opening:

Forest Cover Type	Minimum Stocking Level (Trees/ Acre)	Tree Height 1/ (% of the Adjacent Mature Stand Height)

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (09A)	STANDARDS AND GUIDELINES

Inland ponderosa pine	150 2/	25
Mixed conifers	150 2/	25
Engelmann spruce - sub-alpine fir	150 2/	25
Aspen	300	25

Forest Cover Type	Crown Closure (percent)	Distribution 3/
Inland ponderosa pine	30	60%
Mixed conifers	30	60%
Engelmann spruce - sub-alpine fir	30	60%
Aspen	30	60%

1/ Applies to trees specified at minimum stocking level.

2/ Or as otherwise specified in the silvicultural prescription.

3/ Percent of plots or transect that are stocked.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (09A)	STANDARDS AND GUIDELINES
Water Resource Improvement and Maintenance (F05 and 06)	1. Prevent or remove debris accumulations that reduce stream channel stability and capacity.	
	2. Proposed new land-use facilities (roads, campgrounds, buildings) will not normally be located within floodplain boundaries for the 100-year flood. Protect present and all necessary future facilities that cannot be located out of the 100-year floodplain by structural mitigation (deflection structures, riprap, etc.).	A. Implement mitigation measures when present or unavoidable future facilities are located in the active floodplain to ensure that State water quality standards, bank stability criteria, flood hazard reduction and instream flow

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (09A)	STANDARDS AND GUIDELINES
		standards are met during and immediately after construction.
	3. Prevent stream channel instability, loss of channel cross-sectional areas, and loss of water quality resulting from activities that alter vegetative cover.	A. Limit changes in channel rating or classification scores to an increase of 10 percent or less. B. Maintain at least 80 percent of potential ground cover within 100 feet from the edges of all perennial streams, lakes and other water bodies, or to the outer margin of the riparian ecosystem, where wider than 100 feet.
	5. Avoid channelization of natural streams. Where channelization is necessary for flood control or other purposes, use stream geometry relationships to re-establish meanders, width/depth ratios, etc. consistent with each major stream type.	
	6. Treat disturbed areas resulting from management activities, to reduce sediment yields to the natural erosion rates in the shortest possible time.	
	7. Stabilize streambanks which are damaged beyond natural recovery in a reasonable time period with appropriate methods or procedures that emphasize control by vegetation.	
	8. Include wildlife and fish habitat, aesthetic, or safety goals when planning projects that result in vegetation type conversion.	
	9. Require concurrent monitoring to ensure that mitigative measures are effective and in compliance with State water quality standards.	
Soil Resource Management (KA1)	1. Rehabilitate disturbed soil areas where adverse impacts would occur according to the following priorities: - Aquatic Ecosystems; - Riparian Ecosystems; and - Riparian areas outside of Aquatic and Riparian Ecosystems.	
	2. Minimize soil surface compaction and disturbance in riparian ecosystems. Allow use of heavy construction equipment for construction, residue removal, etc., during periods when the soil is least susceptible to compaction or rutting.	

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (09A)	STANDARDS AND GUIDELINES
	3. Maintain or enhance the long-term productivity of soils within the riparian ecosystem.	
Mining Law Compliance and Administration (G01)	1. Minimize detrimental disturbance to the riparian area by mineral activities. Initiate timely and effective rehabilitation of disturbed areas and restore riparian areas to a state of productivity comparable to that before disturbance.	A. Prohibit the depositing of soil material from drilling, processing, or site preparation in natural drainageways.
		B. Locate the lower edge of disturbed or deposited soil banks out-side the active floodplain.
		C. Prohibit stockpiling of top soil or any other disturbed soil in the active floodplain.
		D. Prohibit mineral processing (milling) activities within the active floodplain. E. Discontinue heavy equipment use when soil compaction, rutting, and puddling is present.
	2. Locate mineral removal activities away from the water's edge or outside the riparian area.	A. Locate drilling mud pits outside the active floodplain unless alternate locations are more environmentally damaging. If location is unavoidable, seal and dike all pits to prevent leakage.
		B. Drain and restore roads, pave and drill sites immediately after use is discontinued. Revegetation to 80% of ground cover in the first year. Provide surface protection during stormflow and snowmelt runoff events.
	3. Confine heavy equipment use to areas necessary for mineral extraction.	
	4. Locate mining camps outside the active floodplain.	
	5. Require concurrent monitoring to ensure that mitigative measures are effective and in compliance with state water quality standards.	
Mineral Management Oil, Gas and Geothermal	1. Review and process mineral lease applications, permits, and licences in a timely fashion recommending to Bureau of Land Mgt. measures and stipulations necessary to protect surface resources.	A. Include applicable no surface occupancy special stipulation. (See Appendix C)

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (09A)	STANDARDS AND GUIDELINES
Transportation System Management (L01 & 20)	1. Locate roads and trails outside riparian areas unless alternative routes have been reviewed and rejected as being more environmentally damaging.	A. Do not parallel streams when road location must occur in riparian areas except where absolutely necessary. Cross streams at right angles where possible. Locate crossings at points of low bank slope and firm surfaces.
	2. Create artificial sediment traps with barriers where the natural vegetation is inadequate to protect the waterway or lake from significant accelerated sedimentation.	
	3. Minimize detrimental disturbance to the riparian area by construction activities. Initiate timely and effective rehabilitation of disturbed areas and restore riparian areas so that a vegetation ground cover or suitable substitute protects the soil from erosion and prevents increased sediment yield.	
	4. Schedule necessary construction activities within the aquatic and riparian ecosystems to coincide with low streamflow and non-critical periods in life cycle of the affected game fish.	

MANAGEMENT AREA 9B
INTENSIVE RIPARIAN MANAGEMENT

Characteristics

This management area generally occurs in high riparian areas or those riparian areas where intensive measures will be taken to enhance or improve riparian ecosystems.

Desired Future Condition

Riparian area acreage remains essentially the same as currently exists. Riparian ecosystems remains healthy with vigor and condition improved in both short and long term. Habitat is improved to near optimal for fisheries and wildlife dependent on riparian values. Water quality and stream channel stability are improved across Forest. Riparian vegetation remains in an essentially "natural" or in altered condition. Area is more attractive to recreationists. Area provides lower levels of non-riparian dependent outputs.

Size

This management area contains 1582 acres. One thousand ninety two acres are unsuitable for timber harvest.

Management Area Direction

Management goals in this area are to enhance riparian vegetation, improve water quality, improve wildlife and fish habitat, increase wildlife populations, and improve stream channel stability. Direction is generally the same as in Riparian Area Prescription 9A. However, management activities and particularly grazing, are more intensively managed to emphasize riparian area values.

MANAGEMENT PRESCRIPTION 09B - EMPHASIZE INTENSIVE RIPARIAN AREA MANAGEMENT

PRACTICES/MIH CODE	MANAGEMENT DIRECTION	STANDARDS AND GUIDELINES
Visual Resource Management (A04)	1. Design and implement management activities which sustain inherent visual values of riparian areas and blend with the surrounding natural landscapes.	A. Do not go below an adopted visual quality objective (VQO) of partial retention.
Dispersed Recreation Management (A14 and 15)	1. Semi-primitive nonmotorized, semi-primitive motorized, roaded natural and rural recreation opportunities can be provided.	
	2. Provide roaded natural recreation opportunities within 1/2 mile of Forest arterial, collector and local roads with better than primitive surfaces which are open to public travel. Provide semi-primitive motorized recreation opportunities with a low to moderate incidence of contact with other groups and individuals within 1/2 mile of designated local roads with primitive surfaces and trails open to motorized recreation use. Where local roads are closed to public motorized recreation travel, provide for dispersed non-motorized recreation opportunities. Manage recreation use to provide for the incidence of contact with other groups and individuals appropriate for the established ROS class. Provide semi-primitive non-motorized recreation opportunities in all areas more than 1/2 mile away from roads and trails open to motorized recreation use.	A. Maximum use and capacity levels are: Recreation use and capacity range during the snow-free period (PAOT/ACRE) Trail use and capacity range (PAOT/Mile of trail)

Capacity Range

Use Level	Very Low	Low	Moderate	High
ROS Class - Semi-primitive nonmotorized				
On Trails PAOT/Mile	2.0	3.0	9.0	11.0
Area-wide PAOT/Acre	.004	.008	.05	.08
ROS Class - Semi-primitive motorized				
On Trails PAOT/Mile	2.0	3.0	9.0	11.0
Area-wide PAOT/Acre	.004	.008	.05	.08

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (09B)	STANDARDS AND GUIDELINES
		ROS Class - Roaded Natural On Trails PAOT/Mile Area-wide PAOT/Acre .04 .08 1.2 2. ROS Class - Rural On Trails PAOT/Mile Area-wide PAOT/Acre .5 .8 5.0 7. Reduce the above use level coefficients as necessary to reflect useable acres, patterns of use, general attractiveness of the specific management area type described in the ROS Users Guide, Chapter 25. Reduce the above use levels when unacceptable changes to the biophysical resources will occur. B. Specify off-road vehicle restrictions based on ORV Use Management (FSM 2355). C. See FSM 2331, FSM 7732, FSH 7709.12 (Trails Handbook), FSH 7109.11A and 11B (Sign Handbook).
	3. Permit undesignated sites in Frissell condition Class 1 through 2 where unrestricted camping is permitted. 4. Manage site use and occupancy to maintain sites within Frissell condition Class 2 except for designated sites which may be Class 3. Close and restore Class 4 and 5 sites. 5. Prohibit motorized vehicle use off forest system roads and trails (except snowmobiles operating on snow) in subalpine, and other ecosystems, where needed to protect soils, vegetation, or special wildlife habitat.	

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (09B)	STANDARDS AND GUIDELINES
Wildlife Habitat Improvement Maintenance (C02, 04, 05, and 06)	1. Provide habitat to meet or exceed DWR population goals for all aquatic vertebrate species.	A. Where natural biologic and geologic conditions permit, maintain or improve overall stream habitat condition at or above 70 percent of optimum (use R-4 GAWS Aquatic Habitat Surveys Handbook).
	2. Coordinate Lake and stream habitat improvement projects with the Utah DWR, where aquatic habitats are below productive potential.	
	3. Maintain instream flows and obtain conservation pools in cooperation with Utah DWR to support a sustained yield of natural fisheries resources.	
Range Resource Management (D07)	1. Maintain proper stocking and livestock distribution to enhance riparian ecosystems.	A. Livestock grazing in riparian areas will be controlled to achieve no more than 25% total forage utilization levels. Browse utilization within the riparian ecosystem will not exceed 35% of new leader production. -Significant streambank damage due to trampling will be avoided. Minor damage caused during a heavy use year should be healed and stabilized within the following year. If livestock cannot be controlled in a riparian area so as to prevent impacts on fisheries and/or streambank stability, livestock will be excluded. -Fencing will be utilized to achieve forage utilization targets in areas of high dispersed recreation use and in important wildlife habitat. -The limiting factor on a given riparian area will be whichever utilization standard is reached first, either total forage or browse.
	2. Prohibit trailing of livestock along the length of riparian areas except where existing stock driveways occur. Rehabilitate existing stock driveways where damage is occurring in riparian areas if possible, and if necessary to achieve riparian-area goals.	
Silvicultural Prescriptions (E03, 06 & 07)	1. Manage Forest cover types to perpetuate tree cover and provide healthy stands, high water quality and wildlife and fish habitat.	

2. Manage forest cover types using the following harvest methods:
-Clearcut in aspen
-Selection (group or single tree) in all other cover types
-Small patch clearcuts may be used in mistletoe infected ponderosa pine and Douglas-fir
-Shelterwood in ponderosa pine and mixed conifers
-Or as specified in the silvicultural prescription

3. Apply intermediate treatments to maintain growing stock level standards or specified in the silvicultural prescription.

4. Utilize firewood material using both commercial and non-commercial methods.

6. Establish a satisfactory stand either naturally or through artificial regeneration methods within a five-year period after disturbance.

7. Prohibit log landing and decking areas within the riparian area.

8. Limit skidding equipment within the riparian area. Do not skid logs across live stream channels or wetlands.

9. Reduce debris jam potential by cutting stumps to near ground level in the 100-year floodplain.

10. For management purposes, a cut-over area is considered an opening until such time as:

- Forage and/or browse production drops below 40% of potential production;
- Deer and elk hiding cover reaches 60% of potential;
- Minimum stocking standards by Forest cover type and site productivity are met; and
- The area appears as a young Forest rather than a restocked opening, and takes on the appearance of the adjoining characteristic landscape.

A. When the visual quality objective of an area is partial retention, the regenerated stand shall meet or exceed all of the following characteristics before a cutover area is no longer considered an opening:

Forest Cover Type	Minimum Stocking Level (Trees/ Acre)	Tree Height 1/ (% of the Adjacent Mature Stand Height)
Inland ponderosa pine	150 2/	25

Mixed conifers	150 2/	25
Engelmann spruce - sub-alpine fir	150 2/	25
Aspen	300	25

Forest Cover Type	Crown Closure (percent)	Distribution 3/
Inland ponderosa pine	30	60%
Mixed conifers	30	60%
Engelmann spruce - sub-alpine fir	30	60%
Aspen	30	60%

1/ Applies to trees specified at minimum stocking level.

2/ Or as otherwise specified in the silvicultural prescription.

3/ Percent of plots or transect that are stocked.

Water Resource Improvement and Maintenance (F05 and 06)

1. Prevent or remove debris accumulations that reduce stream channel stability and capacity.

2. Proposed new land-use facilities (roads, campgrounds, buildings) will not normally be located within floodplain boundaries for the 100-year flood. Protect present and all necessary future facilities that cannot be located out of the 100-year floodplain by structural mitigation (deflection structures, riprap, etc.).

A. Implement mitigation measures when present or unavoidable future facilities are located in the active floodplain to ensure that State water quality standards, bank stability criteria, flood hazard reduction and instream flow standards are met during and immediately after construction.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (09B)	STANDARDS AND GUIDELINES
	3. Prevent stream channel instability, loss of channel cross-sectional areas, and loss of water quality resulting from activities that alter vegetative cover.	A. Limit changes in channel rating or classification scores to an increase of 10 percent or less.
		B. Maintain at least 80 percent of potential ground cover within 100 feet from the edges of all perennial streams, lakes and other water bodies, or to the outer margin of the riparian ecosystem, where wider than 100 feet.
	5. Avoid channelization of natural streams. Where channelization is necessary for flood control or other purposes, use stream geometry relationships to re-establish meanders, width/depth ratios, etc. consistent with each major stream type.	
	6. Treat disturbed areas resulting from management activities, to reduce sediment yields to the natural erosion rates in the shortest possible time.	
	7. Stabilize streambanks which are damaged beyond natural recovery in a reasonable time period with appropriate methods or procedures that emphasize control by vegetation.	
	8. Include wildlife and fish habitat, aesthetic, or safety goals when planning projects that result in vegetation type conversion.	
	9. Require concurrent monitoring to ensure that mitigative measures are effective and in compliance with State water quality standards.	
Soil Resource Management (KA1)	1. Rehabilitate disturbed soils areas where adverse impacts would occur according to the following priorities: - Aquatic Ecosystems; - Riparian Ecosystems; and - Riparian areas outside of Aquatic and Riparian Ecosystems.	
	2. Minimize soil surface compaction and disturbance in riparian ecosystems. Allow use of heavy construction equipment for construction, residue removal, etc., during periods when the soil is least susceptible to compaction or rutting.	
	3. Maintain or enhance the long-term productivity of soils within the riparian ecosystem.	

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (09B)	STANDARDS AND GUIDELINES
Mining Law Compliance and Administration (G01)	1. Minimize detrimental disturbance to the riparian area by mineral activities. Initiate timely and effective rehabilitation of disturbed areas and restore riparian areas to a state of productivity comparable to that before disturbance.	A. Prohibit the depositing of soil material from drilling, processing, or site preparation in natural drainageways. B. Locate the lower edge of disturbed or deposited soil banks out-side the active floodplain. C. Prohibit stockpiling of top soil or any other disturbed soil in the active floodplain. D. Prohibit mineral processing (milling) activities within the active floodplain. E. Discontinue heavy equipment use when soil compaction, rutting, and puddling is present.
	2. Locate mineral removal activities away from the water's edge or outside the riparian area.	A. Locate drilling mud pits outside the active floodplain unless alternate locations are more environmentally damaging. If location is unavoidable, seal and dike all pits to prevent leakage. B. Drain and restore roads, stabilize drill sites immediately after use is discontinued. Provide surface protection during stormflow and snowmelt runoff events.
	3. Confine heavy equipment use to areas necessary for mineral extraction.	
	4. Locate mining camps outside the active floodplain.	
	5. Require concurrent monitoring to ensure that mitigative measures are effective and in compliance with state water quality standards.	
Transportation System Management (L01 & 20)	1. Locate roads and trails outside riparian areas Unless alternative routes have been reviewed and rejected as being more environmentally damaging.	A. Do not parallel streams when road location must occur in riparian areas except where absolutely necessary. Cross streams at right angles where possible. Locate crossings at points of low bank slope and firm surfaces.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (09B)	STANDARDS AND GUIDELINES
	2. Create artificial sediment traps with barriers where the natural vegetation is inadequate to protect the waterway or lake from significant accelerated sedimentation.	
	3. Minimize detrimental disturbance to the riparian area by construction activities. Initiate timely and effective rehabilitation of disturbed areas and restore riparian areas so that a vegetation ground cover or suitable substitute protects the soil from erosion and prevents increased sediment yield.	
	4. Schedule necessary construction activities within the aquatic and riparian ecosystems to coincide with low streamflow and non-critical periods in life cycle of the affected game fish.	

MANAGEMENT AREA 10A
RECOMMENDED RESEARCH NATURAL AREAS

Characteristics

This management area consists of proposed research Natural areas. These areas are: (1) timbered cinder cone on the Cedar City Ranger District and (2) Table Cliff Plateau on the Escalante Ranger District, and Red Canyon on the Powell Ranger District.

Desired Future Condition

The future condition of these areas, if approved as Research Natural Areas, will be shaped by natural forces only; except that research study markers and/or equipment may be in place. No planned management activities will affect the condition. If these recommended areas are not approved as RNA's by the Chief of the Forest Service, they will be managed according the Management Prescription:General Forest Direction.

Size

This management area contains 2335 acres. All acres are unsuitable for timber harvest.

Management Area Direction

Emphasis is on research, study, observations, monitoring, and educational activities that are nondestructive and nonmanipulative, and that maintain unmodified conditions.

PRACTICES/MIH CODE	MANAGEMENT DIRECTION	STANDARDS AND GUIDELINES
MANAGEMENT PRESCRIPTION 10A - RECOMMENDED RESEARCH NATURAL AREAS		
B. MANAGEMENT REQUIREMENTS		
Visual Resource Management (A04)	1. Meet stated visual quality objective.	A. Do not go below an adopted visual quality objective (VQO) of retention
Recreation Site Construction and Rehabilitation (A05 & 06)	1. Prohibit construction of developed recreation sites.	
Dispersed Recreation Management (A14 & 15)	1. Discourage or prohibit any public use which contributes to impairment of research or educational values. 2. Permit and encourage use by scientists and educators.	A. Reference FSM 4063.36.
Wildlife Habitat Improvement and Maintenance (C02, 04, 05, and 06)	1. Prohibit any direct habitat manipulation.	
Range Resource Management (D07)	1. Restrict grazing by livestock to that essential for the maintenance of a specific vegetation type.	
Silvicultural Prescriptions (E03, 06 & 07)	1. Prohibit any logging activity.	
Special Use Management (non-recreation) (J01)	1. Use special use permits or cooperative agreements to authorize and document scientific activity.	A. Reference FSM 4063.37.
Property Boundary Location (J06)	1. Monument all corners or turning points and document and record the monumentation in the establishment report. Mark boundaries in the field when appropriate to ensure integrity of the area.	

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (10A)	STANDARDS AND GUIDELINES
Transportation System Management (L01 & 20)	1. Generally, physical improvements, such as roads are not permitted.	
Trail System Management (L23)	1. Limit trails to those needed for access to conduct research and for educational purposes.	
Fire Planning and Suppression (P01)	1. Extinguish wildfires endangering the RNA. Allow fires within the RNA to burn undisturbed unless they threaten persons or property outside the area, or the uniqueness of the RNA.	A. Leave fire-caused debris for natural decay.
	2. Do not reduce fire hazard within the RNA.	
Law Enforcement (P24 thru 27)	1. Use special closures when necessary to protect the RNA from actual or potential damage from public use.	A. Issue closure order under provisions of 36 CFR 261.50 (FSM 4063.3).
Protection (P35:39)	1. Take no action against endemic insects, diseases or wild animals.	
Mineral Management Oil, Gas, and Geothermal	1. Review and process mineral lease applications, permits, and licenses in a timely fashion, recommending to Bureau of Land Management measures and stipulations necessary to protect surface resources.	A. Include special stipulation #1. (No-surface-occupancy.) (See Appendix C)

MANAGEMENT AREA 10B
MUNICIPAL WATER SUPPLY WATERSHEDS

Characteristics

This management area occurs within or is conterminous with the boundary of identified municipal water supply watersheds, including those supplying Teasdale, Escalante, Panguitch, Parowan, Brian Head, Enterprise, and St. George.

Desired Future Condition

Area continues to provide multiple resource outputs without impairment of existing water quality or quantity at presently utilized or potential culinary water spring sources. Quantity and/or quality is improved where feasible.

Size

This management area contains 9100 acres. Eight thousand six acres are unsuitable for timber harvest.

Management Area Direction

Management emphasis is to protect or improve the quality and quantity of municipal water supplies. Management practices are modified.

MANAGEMENT PRESCRIPTION 10E - PROVIDE FOR MUNICIPAL WATERSHEDS AND MUNICIPAL WATER SUPPLY WATERSHEDS

B. MANAGEMENT REQUIREMENTS

PRACTICES/MIH CODE	MANAGEMENT DIRECTION	STANDARDS AND GUIDELINES
Visual Resource Management (A04)	1. Management activities in foreground and middleground dominate, but harmonize and blend with the natural setting. Management activities may also dominate but appear natural when seen as background.	A. Do not go below an adopted visual quality objective (VQO) of maximum modification
Dispersed Recreation Management (A14 & 15)	1. Allow motorized travel only on established roads and trails. Close watershed to all travel when the road or trail surfaces could be damaged to the degree that water quality would be degraded.	
Range Resource Management (D07)	1. Confine livestock trailing to established driveways and historic trailing routes.	
	2. Reduce or remove livestock if municipal use water quality is endangered.	
	3. Stabilize and/or regenerate areas disturbed by livestock prior to resuming grazing use of the area.	
Mineral Management Oil, Gas and Geothermal	1. Review and process mineral lease applications, permits and licenses in a timely fashion recommending to Bureau of Land Management measures and stipulations necessary to protect surface resources.	A. Include special Stipulation #1. (No-surface-occupancy) for designated areas. (See Appendix C.)

Silvicultural Prescriptions (E03)

1. Harvest forest cover types using any harvest method that is silviculturally appropriate and will not contribute to a decrease in water quality.

2. Apply intermediate treatments to maintain growing stock level standards as specified in the silvicultural prescriptions.

3. For management purposes, a cut-over area is considered an opening until such time as:

- Forage and/or browse production drops below 40 percent of potential production;
- Deer and elk hiding cover reaches 60 percent of potential;
- Minimum stocking standards by Forest cover type and site productivity are met; and
- The area appears as a young Forest rather than a restocked opening, and takes on the appearance of the adjoining characteristic landscape.

A. When the visual quality objective of an area is modification or maximum modification the regenerated stand shall meet or exceed all of the following characteristics before a cut-over area is no longer considered an opening:

Forest Cover Type	Minimum Stocking Level (Trees/Acre)	Tree Stand Height (Ft.) 1/
Ponderosa pine	150 2/	6
Mixed conifers (See Appendix C.)	150 2/	6

PRACTICES/MIH CODE	MANAGEMENT DIRECTION (10E)	STANDARDS AND GUIDELINES

Engelmann spruce - subalpine fir	150 2/	6
Aspen	300	6

Forest Cover Type	Crown Closure (percent)	Distribution
Inland ponderosa pine	30	60%
Mixed conifers	30	60%
Engelmann spruce - subalpine fir	30	60%
Aspen	30	75%

1/ Applies to trees specified at minimum stocking level.

2/ Or as otherwise specified in the silvicultural prescription.

3/ Percent of plots or transects that are stocked.

Soil Resource Management (KA1)	1. Immediately rehabilitate man-caused disturbances and restore burned areas. Inspect rehabilitated areas annually and provide maintenance necessary to protect the watershed.	
Water Resource Improvement and Maintenance	1. Within riparian areas apply management direction in riparian area management prescription except as amended by the direction in this prescription.	A. Use "Chapter 6 of State of Utah Public Drinking Water Regulations" as a guide. B. Consider mineral entry withdrawals or restrictive lease stipulations to protect quantity and quality of Municipal water supplies.
	2. Provide for special protection zone within 1500 feet up gradient and 100 feet down gradient of spring sources of Municipal water supplies.	

CHAPTER V

IMPLEMENTATION OF THE FOREST PLAN

A. IMPLEMENTATION DIRECTION

While the Dixie National Forest will be guided by existing and future laws, regulations, policies and guidelines, the Forest Plan is designed to replace existing direction. This Forest Land and Resource Management Plan supercedes or supplements all previous land use and land management plans. Subject to valid existing rights, all outstanding and future permits, contracts, cooperative agreements, and other instruments for occupancy and use of Forest lands will be brought into conformance with this Plan by October 1, 1988.

1. Budget Proposals

The Forest Plan provides the management direction for developing multi-year implementation programs. The Plan's scheduled practices, shown in the Implementation Schedule are translated into multi-year program budget proposals which identify the needed expenditures. These processes compliment the Forest planning process as vehicles for requesting and allocating the funds needed to carry out the planned management direction. The Forest's proposed annual program budget is the basis for the requested funding. Upon approval of a final budget for the Forest, the Annual Program of Work is finalized and carried out. The accomplishment of the Annual Program is the incremental implementation of the management direction of the Forest Plan.

2. Environmental Analysis

Future environmental analysis associated with the above processes will usually be tiered to the Forest Plan and EIS. Information appropriate for project-related decisions rather than land use decisions, will normally be utilized in such environmental analysis.

Projects and activities permitted within the Forest Plan will be subjected to environmental analysis as they are planned for implementation. If the environmental analysis for a project shows that: (1) the management area prescription and standards can be complied with, and (2) little or no environmental effects are expected beyond those identified and documented in the Forest Plan final EIS; the analysis may result in a categorical exclusion. A Decision Notice may be used to document the decision.

B. MONITORING AND EVALUATION

The Plan will be monitored to ensure the scheduled activities are implemented and the anticipated outputs are produced. The monitoring plan will assess the adequacy of program costs. The goals, objectives, and standards and guidelines will be evaluated regularly to assess their validity and accomplishment.

This monitoring and evaluation plan is designed to provide feedback to planners and the Forest Supervisor. It will provide Forest Managers with information primarily on plan implementation and the effects of implementation.

The monitoring plan that follows is comprised of the following components:

1. Activities, Effects and Resources to be Measured - a specific statement of what will be monitored.

2. Monitoring Method - a description of the technique and sources of information to be employed. To the extent possible, existing reporting systems and standard methods will be used.

3. Expected Precision - the exactness or degree of refinement of collected data. Precision is qualitatively rated as high, moderate or low.

Expected Reliability - a measure of how accurately the parameter monitored reflects the situation. A qualitative system is used to rate reliability (high, moderate, or low).

4. Measurement Frequency - the schedule of monitoring activities.

5. Reporting Period - the reoccurring interval between reports summarizing monitoring results for a particular activity or practice. The sampling period should be long enough for specialists to capture significant information.

6. Variation Which Would Cause Further Evaluation and/or Change in Management Direction - a statement describing the tolerance limits within which actual performance can vary from predicted performance. When these limits are exceeded, further evaluation is triggered.

C. REVISION AND AMENDMENT

The Forest Supervisor may change proposed implementation schedules to reflect differences between proposed annual budgets and appropriated funds. Such scheduled changes shall be considered an amendment to the Forest Plan but shall not be considered a significant amendment, or require the preparation of an environmental impact statement, unless the changes significantly alter the long-term relationship between levels of multiple-use goods and services projected under planned budget proposals as compared to those projected under actual appropriations.

The Forest Supervisor may amend the Forest Plan. Based on an analysis of the objectives, guidelines, and other contents of the Forest Plan, the Forest Supervisor shall determine whether a proposed amendment would result in a significant change in the Plan. If the change resulting from the proposed amendment is determined to be significant, the Forest Supervisor shall follow the same procedure as that required for development and approval of a Forest Plan. If the change resulting from the amendment is determined not to be significant for the purposes of the planning process, the Forest Supervisor may implement the amendment following appropriate public notification and satisfactory completion of NEPA procedures.

A Forest Plan shall ordinarily be revised on a 10-year cycle or at least every 15 years. It also may be revised whenever the Forest Supervisor determines that conditions or demands in the area covered by the Plan have changed

MONITORING AND EVALUATION PROGRAM

ACTIVITIES, EFFECTS AND RESOURCES TO BE MEASURED	MONITORING METHOD	PRECISION/ RELIABILITY	MEASUREMENT FREQUENCY	REPORTING PERIOD	VARIATION WHICH WOULD CAUSE FURTHER EVALUATION AND/OR CHANGE IN MANAGEMENT DIRECTION
DEVELOPED RECREATION-PUBLIC					
Condition of Facilities (whether the condition of developed facilities is declining from the current situation)	Annual RIM Reports - Total $ needed to bring facilities to Condition Class I	H/M	Bi-annual	5-Year	Five year average exceeds 1985 by 5%
Soil and Vegetative Loss at Developed Sites	Transects, photo points at selected key sites	H/M	5-Year	5-Year	Campsite condition below Class III using the Limits of Acceptable Impact
Facility Capacity (whether construction and reconstruction of facilities is keeping pace with demand)	PAOT, PAOT-Days	H/H	Annual	5-Year	PAOT and PAOT-Days greater than or equal to 90% of projected demand
Developed Site Service (whether (Forest is able to provide service scheduled in the plan)	PAOT-Days FSM (to standard), Mgnt. Attainment Report Item #26	H/H	Annual	5-Year	PAOT-Days FSM (standard) five year average exceeds or declines from the Forest Plan objective by 10%
Developed Site Use - Amount & Distribution (does demand exceed supply?)	Double sample indicator sites, random sample all fee sites	M/M	Annual	Annual	Use of an individual site exceeds 60% of theoretical capacity for the summer season or daily use exceeds capacity on more than 5% of the days in the summer sason. The five-year average developed site use for the Forest varies from projected demand by more demand varies from projected demand by more than 20%
(The monitoring of recreation budgets are reflected in the amount of service provided and recreation facilities reconstructed in items above)					
DEVELOPED RECREATION-PRIVATE					
Downhill Ski Area Use (is it increasing as projected?)	Ski area attendance reports	H/H	Annual	5-Year	Five year average varies from projected demand by more than 20%
Organization Site Use (are existing sites being fully utilized?)	Permittee occupancy plan, preseason occupancy reports, postseason regular visits to check occupancy	H/H	1st, 5th, 10th year	5-Year	Unreported private sector vacancies on Forest Land exceeding 10% of the summer season or reported and inventoried vacant periods for which no reservations are received

MONITORING AND EVALUATION PROGRAM

ACTIVITIES, EFFECTS AND RESOURCES TO BE MEASURED	MONITORING METHOD	PRECISION/ RELIABILITY	MEASUREMENT FREQUENCY	REPORTING PERIOD	VARIATION WHICH WOULD CAUSE FURTHER EVALUATION AND/OR CHANGE IN MANAGEMENT DIRECTION
DISPERSED RECREATON					
Dispersed Visitor Use (summer and winter)	Road counters, parking lot counts, tail counters, annual RIM reports	M/L	Annual	5-Year	Visitor use varies from projected demand by greater than 20%
Site Condition (Limits of change)	Photo points, transects key sites adjacent to water	H/M	5-Year	5-Year	Campsite condition below Class III using the Limits of Change Table 1.
Trail Condition	Trail condition surveys	H/M	25% annually	4-Years	Trail mileage classed as inadequate (substandard) exceeds the current inadequate mileage shown in the AMS
Shifts between ROS Classes	ROS mapping	M/L	10 year	10 year	If the change between classes is 5% greater than predicted.
Off-Road Vehicle Travel	Acres needing rehabilitation	L/M	5-Year	5-Year	Acres increased by 10% over last inventory
	Acres should be closed to resolve conflict	H/M	5-Year	5-Year	Acres increased by 10% over last inventory
CULTURAL RESOURCES					
Completion of cultural resource investigation for all site disturbing projects where no inventory has been completed in the past	Management review	H/H	Annual	Annual	Failure to accomplish is a performance problem and does not indicate a need to change management direction.
VISUAL RESOURCE					
Compliance with Visual Quality Objectives	Landscape Architect evaluate one retention corridor selected at random, landscape Architect evaluate a minimum of two or 10% (whichever is more) of previous year's projects, selection at random from list of previous year's completed projects	H/M	Annual	Annual	Corridor contains more than 2% of view area which does not conform to the visual quality objective, more than one sampled project does not meet VQO in a given year, or one or more projects in two successive years do not meet VQO
WILDERNESS					
1. Condition of Campsites and Surrounding Area (are conditions declining from the current situation?)	Limits of Change at key sites	H/M	5-years	5-Years	Limit of Change analysis shows that the condition class has declined one class on 25% of inventoried sites

MONITORING AND EVALUATION PROGRAM

ACTIVITIES, EFFECTS AND RESOURCES TO BE MEASURED	MONITORING METHOD	PRECISION/ RELIABILITY	MEASUREMENT FREQUENCY	REPORTING PERIOD	VARIATION WHICH WOULD CAUSE FURTHER EVALUATION AND/OR CHANGE IN MANAGEMENT DIRECTION
2. Amount and Distribution of Human Use	Trail registration, trail counters, and trailhead counts with periodic intensive sample	M/M	Annual	Annual	Human use exceeds area capacity identified in this plan
WILDLIFE AND FISH					
Management Indicators					
a. Big game (mule deer and elk)	UDWR harvest and classification data, winter range rides, aerial recon., pellet transects	M/M	Annual	Annual	Prior to reaching optimum Forest populations, a downward population trend of 10% over 3 years. Once optimum populations are reached, a 20% total population or hard composition change over a 5-year period.
b. Wild turkey	UDWR harvest data, sighting records of reliable persons. Habitat evaluation during pre- and post-timber sale reviews and range analysis	M/M	Annual	Annual	10% total decline in population size over a 3 year period and/or loss of important habitat components; i.e., roost trees in 2 or more areas of essential habitat as designated by UDWR and FS
c. Goshawk, common flicker, yellow-breasted chat	Nest survey for goshawk	M/M	Annual if population near minimum level, or every 2-5 years in project areas	Annual	10% total declining goshawk population size over a 3 year period
	Variable strip transect for goshawk, common flicker, yellow-breasted chat; sighting records of reliable persons	L/M	Annual if population near minimum level, or every 2-5 years in project areas	Annual	20% decline in chat population size; 25% decline in flicker population size over a 5-year period
d. Trout: brook, brown rainbow, cutthroat	Gill netting, electro-shocking, creel census	M/H	Annual	Annual	20% total decline in population size over a 5-year period or a major change in size or quality of catch
e. Bonneville cutthroat	Electro-shocking, R-4 GAWS habitat survey	M/H	Annual	Annual	10% decline in population size in any one stream in any one year
Conformance with Standards and Guidelines					
a. Habitat Diversity	Vegetative composition and age class surveys, calculation of Patton Edge-Shape Index from maps & air photos	M/H	Annual in vegetative manipulation project areas	Annual	Significant variation from Standards and Guidelines specifications; below 7% oldgrowth, less than 7% grass, less than 10% in other age classes.

MONITORING AND EVALUATION PROGRAM

ACTIVITIES, EFFECTS AND RESOURCES TO BE MEASURED	MONITORING METHOD	PRECISION/ RELIABILITY	MEASUREMENT FREQUENCY	REPORTING PERIOD	VARIATION WHICH WOULD CAUSE FURTHER EVALUATION AND/OR CHANGE IN MANAGEMENT DIRECTION
b. Snag management	Pre-sale, post-sale, post-fire wood count and condition survey	H/H	Each sale	Annual	10% below specifications of Standards and Guidelines
c. Fish/Riparian habitat	R-4 GAWS analysis, vegetative composition and age class surveys	H/H	Annual to develop baseline, every 5 years as needed thereafter	As data collected	20% variation from specifications of Standards and Guidelines
d. Habitat effectiveness for big game species	Road density: map, air photo,	M/M	Annual	Annual	10% below specifications of Standards and Guidelines
	Hiding, thermal cover: ground survey	H/H	Each Timber Sale	Annual	10%-15% variation from specifications of Standards and Guidelines
RANGE					
Range Vegetation Condition and Trend	Measurement of plant composition and vigor, ground cover and soil stability	M/M	As per approved allotment management plans	As per approved allotment management plans	Downward vegetation and/or soil trend
Forage Utilization	Grazing impact studies by standard Forest Service methods	M/M	As per approved allotment mangagement plans	As per approved allotment management plans	Exceed prescribed utilization by 20% one time or 10% consistently
Wild Horse Numbers and Habitat Trends	Aerial counts, grazing impact studies	M/M	Annual horse count, habitat assessment as per allotment management plans	Annual	Horse numbers deviate by 10% or range trend is down
TIMBER					
Timber Harvest Area	Review timber program to ensure that harvest area will not exceed 10 year estimate by more than 10%.	H/M	Semi-Annual	Semi-Annual	Planned harvest area exceeded by more than 10% in any given year.

MONITORING AND EVALUATION PROGRAM

ACTIVITIES, EFFECTS AND RESOURCES TO BE MEASURED	MONITORING METHOD	PRECISION/ RELIABILITY	MEASUREMENT FREQUENCY	REPORTING PERIOD	VARIATION WHICH WOULD CAUSE FURTHER EVALUATION AND/OR CHANGE IN MANAGEMENT DIRECTION
Timber Research Needs existing	Document recurring or unusual problems	M/M	Annual	Annual	Inability to solve problems through technology or practices
Verify Classification of Suitable and Unsuitable Lands	Examine lands during silvicultural exams, timber inventories, and ID team reviews to ground truth capabilities	H/H	Project basis	Annual	10% of land area found to be incorrectly identified
	Complete soil/geologic survey of lands identified as unsuitable because of potential irreversible resource damage by 1990	M/H	On project basis as available, but prior to Forest plan update	5-Years	10% of land found to be incorrectly identified
Harvest Practices in Retention, Partial Retention and Riparian Areas	Review of silvicultural prescriptions for timber sales and post-sale stand exams	M/H	Project basis	Annual	Violation of visual quality objectives or riparian area damage
Adequate Restocking of Stands Within a Reasonable Time Period, Generally 5 Years of Final Harvest.	Silvicultural exam (Type 3)	H/H	5-Years after final harvest	Annual	Less than 5th year stocking standards in FSH 2409.26b--5.31-4
Maximum Size of Openings Created by Clearcuttings	Review timber sale silvicultural prescriptions and post-sale silvicutural exams	H/H	Project basis	Annual	Clearcut sizes either restrict timber harvest practices or adversely affect visuals or other resource values
Reforestation and Timber Stand Improvement Accomplishment	Review TSI and reforestation needs and accomplishment reports, KV plans	H/H	Annual	Annual	Failure to meet targets or accomplish KV needs in timber sale plans
Fuelwood Consumption and Supply	Determine supply by fuels inventories and acres available; determine demand by monitoring permits issued and sampling actual removal	H/M	Project basis	Annual	Supply is not meeting or projected to not meet demand within 5 years
Growth Response of Regenerated Stands, Precommercially Thinned Stands and Cutover Sawtimber (including effects of insects & diseases)	Stage II stand examination, permanent growth plots	H/H	5th Year	Annual	± 10% variance in actual growth measured against assumptions made in growth simulations (PROGNOSIS)
Timber Supply Projections	Stage II stand examination to complete exam on remainder of commercial Forest land	H/H	Annual in an accelerated basis until completed. Work toward goal of 45,000 acres per year on a continuing basis	Annual	± 10% variation in projections measured against Forest Plan projections

MONITORING AND EVALUATION PROGRAM

ACTIVITIES, EFFECTS AND RESOURCES TO BE MEASURED	MONITORING METHOD	PRECISION/ RELIABILITY	MEASUREMENT FREQUENCY	REPORTING PERIOD	VARIATION WHICH WOULD CAUSE FURTHER EVALUATION AND/OR CHANGE IN MANAGEMENT DIRECTION
	Stage I timber inventory	H/H	1989 or sooner	5 Years or before Forest plan update	± 10% variation in projections measured against Forest Plan projections
SOILS					
Long-Term Soil Productivity	Fabric dams, erosion pins, visual estimates, photo points, and/or other accepted methods	H/M	2 locations per year	Annual	Exceeding established soil loss tolerance levels
Compaction	Measurement of bulk density and/or pore space	H/H	2 timber sales per year	Annual	15% increase in bulk density or 50% decrease in pore space
Upland Areas Adjacent to Riparian Management Areas	Fabric dams, erosion pins, visual estimates, photo points, and/or other accepted methods	H/M	2 locations per year	1st and 5th year following management practice	Exceed Forest Standards and Guidelines
Soil & Water Resource Protection - Project EA Mitigating Requirements	Visual estimates	H/M	1 project per year per Ranger District	Annual	Mitigating requirements not implemented or not working
Soil Survey Activities	Progress reviews, management attainment reports	H/H	Annually, during years of programmed survey work	Annual	± 15% of plan direction
Soil & Water Resource Improvement Needs Inventory	Update	H/H	Annual	Annual	Detection of improvement needs requiring early treatment or of higher priority than on current list.
WATER					
Compliance with State Water Quality Standards	Baseline monitoring as described in Dixie Water Quality Monitoring Plan, coordination with State 208 Agency	M/M	Monthly	Annual	Violation of Utah Water Quality Standards

MONITORING AND EVALUATION PROGRAM

ACTIVITIES, EFFECTS AND RESOURCES TO BE MEASURED	MONITORING METHOD	PRECISION/ RELIABILITY	MEASUREMENT FREQUENCY	REPORTING PERIOD	VARIATION WHICH WOULD CAUSE FURTHER EVALUATION AND/OR CHANGE IN MANAGEMENT DIRECTION
Effectiveness of Best Management Practices in Meeting Water Quality Objectives and Goals	Project monitoring as described in Dixie Water Quality Monitoring Plan or project plans, to include chemical, physical, bacteriological, invertebrate, sedimentation or other parameters needed to meet monitoring objectives	H/H	Variable	Variable	Non-achievement of water quality goals, violation of Utah Water Quality Standards,
	Inspection of drainage and erosion control measures on ground disturbing activities	M/M	Annual	Annual	Exceed Forest standards and guidelines
Compliance with Utah Public Drinking Water Regulations	Required chemical analyses	H/H	Every 3 years	Every 3 years	Violation of primary maximum contaminant levels
Water Yield Increases in East Fork of Sevier Watershed	WRENSS water yield methodology	L/M	Annual	Annual	Exceed minimum management requirements in timber harvest model
Stability of Streambanks in East Fork of Sevier River Drainages	Sequential photopoints, measure stability rating in representative reaches	M/M	Annual	Annual	Exceed Forest standards and guidelines
Effectiveness and Maintenance Needs of Watershed Improvements	Visual inspection	L/H	1st year after installation, every 5 years thereafter	Annual	Maintenance required or project not accomplishing stated objectives
	Volumetric measurements of retained sediments	M/M	Variable	Variable	Project not accomplishing stated objectives
Accomplishment of Riparian Area Management Goals	Sequential photopoints, forage utilization level measurements (total and browse), stream channel stability ratings, stream channel morphology measurements, streambed materials measurements	M/H	Annual	Annual	Exceed Forest standards and guidelines
AIR QUALITY					
Compliance with Utah State Air Quality Guidelines and Standards	Compliance with weather forecast, burning index	M/M	Ongoing	As any violation occurs	Adverse public reaction, settling of smoke into inhabitated areas

MONITORING AND EVALUATION PROGRAM

ACTIVITIES, EFFECTS AND RESOURCES TO BE MEASURED	MONITORING METHOD	PRECISION/ RELIABILITY	MEASUREMENT FREQUENCY	REPORTING PERIOD	VARIATION WHICH WOULD CAUSE FURTHER EVALUATION AND/OR CHANGE IN MANAGEMENT DIRECTION
MINERALS					
Exploration Proposals: Adequacy of Permitting Process	Evaluation of case history	M/M	Evaluate one on each R.D.	Annual	Non-compliance with the Regional standards and direction
Lease/Permit Applications Forms and NEPA Process (Compliance with Regional Standards and Direction)	Inventory pending cases, evaluate adequacy of lease/permit and operating plan requirements, review EAs covering leasing and permits.	M/M	Evaluate one on each R.D.	Annual	Deviation from 1984 FS/BLM Agreement, lease and operating plan requirements are found inadequate to meet multiple resource needs, EAs inadequate
Site Specific Development Proposals and Administration of Operations, Compliance with Terms of Operating Plans and Existing Agreements	Field examination	H/H	Ongoing during operations, outlines in Regional Standards	Annual	Any unacceptable or unexpected results that deviate from the environmental assessment and approved operating plan; inadequacy or unreasonableness of lease/permit terms and operating plan requirements
Reclamation Results: Effectiveness of Work Done	Field examination	H/H	Annual inspection of 25% of operational areas that have been closed 2-3 years	Annual	Any unacceptable or unexpected results that deviate from the Environmental Assessment and approved operating plan
Exercise of Reserved and Outstanding Rights by Owner of Minerals	Monitor mineral-related activity on NFS surface	M/M	Ongoing	As any activity affecting NFS management occurs	Any impacts adverse to NFS management of surface resources
LANDS					
Special Use Permits, Applications, Amendments and Transfers	Land use reports	M/M	Quarterly	As scheduled in FY Action Plan	Deviation from R-4 standards
Special Uses (non recreation) Permit Administration and Inpection	Land use reports	M/M	Annually permits scheduled for inspection	As scheduled in FY Action Plan	Deviation from R-4 standards
Land Survey	Management attainment report	H/H	Annually	As scheduled in FY Action Plan	± 10% of planning period target

MONITORING AND EVALUATION PROGRAM

ACTIVITIES, EFFECTS AND RESOURCES TO BE MEASURED	MONITORING METHOD	PRECISION/ RELIABILITY	MEASUREMENT FREQUENCY	REPORTING PERIOD	VARIATION WHICH WOULD CAUSE FURTHER EVALUATION AND/OR CHANGE IN MANAGEMENT DIRECTION
Land Exchange	Land adjustment plan, management attainment report	H/H	Annually on all acres planned for exchange	As scheduled in FY Action Plan	± 50% of planning period target
Rights-of-Way	Right-of-way acquistion plan	H/H	Annually on assigned targets	As scheduled in FY Action Plan	± 50% of planning period target
Construction of Through Utilities	Construction within approved corridors/windows	H/H	5-Year	Every 5th Year	Environmental analysis determines that a proposed corridor/window is better suited than those approved in the Forest Plan
FACILITIES					
Road and Bridge Construction and Reconstruction	Accomplishment report	H/H	Annual	5 Year	5% deviation from projected quantities
Road Management	Road logs condition surveys, and signs	M/M	Continuous	5 Year	5% downward trend in the condition of existing roads
Buildings	Inspection reports	M/M	Annual	5 Year	Excessive deterioration of existing buildings
Dam Administration	Inspections	H/H	Annual	Annual	Administrative failure to followup on unsafe dams
PROTECTION - FIRE					
Adequacy of Fire Prevention Programs	Measure of number and size of person-caused fires	H/H	Annual	5 Years	20% increase in cumulative 5 years average
Number of Wildfires and Acres Burned	Frequency by size distribution, intensity level and acres burned	H/H	Annual	5 Years	20% increase in cumulative 5 year average for any of the factors
Fire management Effectiveness Index (FMEI)	Evaluate cost plus net value change during fire	M/M	Annual	5 Years	20% increase in FMEI (FFP+FFF+NVC)
Compliance with Fuel Loading Standards	Field measurements after activity or fuel treatment	M/M	Sample 30% of projects	5 Years	Exceeding fuel level guidelines or 10% failure to make targets

MONITORING AND EVALUATION PROGRAM

ACTIVITIES, EFFECTS AND RESOURCES TO BE MEASURED	MONITORING METHOD	PRECISION/ RELIABILITY	MEASUREMENT FREQUENCY	REPORTING PERIOD	VARIATION WHICH WOULD CAUSE FURTHER EVALUATION AND/OR CHANGE IN MANAGEMENT DIRECTION
PROTECTION - INSECT DISEASE					
Population Levels of Insects and Diseases	Aerial surveys by R-4 F.P.M.	M/M	Annual	Annual	Building of past populations.
Effectiveness of Dwarf Mistletoe Suppression Projects to Protect Regeneration	Field reviews	H/H	Follow-up on projects	5 Years	Infestation in regeneration of precommercial thinned areas
ECONOMICS					
Effects on Local Economies of Forest Outputs	District staff reviews of affected sectors		Annually	Annually	Significant changes in sectors within economic impact areas

significantly or when changes in RPA policies, goals, or objectives would have a significant effect on forest level programs. In the monitoring and evaluation process, the interdisciplinary team may recommend a revision of the Forest Plan at any time. Revisions are not effective until considered and approved in accordance with the requirements for the development and approval of a Forest Plan. The Forest Supervisor shall review the conditions on the land covered by the Plan at least every 5 years to determine whether conditions or demands of the public have changed significantly.

The Forest Plan will be revised when necessary but no later than October 1, 2000.

APPENDIX A

Management Area Maps
(Contained in a Separate Package)

APPENDIX B

Implementation Schedules:

Recreation
Wilderness
Wildlife and Fish
Range Management
Timber Management
Soil and Water
Minerals
Lands
Facilities
Protection

F O R E S T   A C T I O N   S C H E D U L E
Recreation

				Fiscal Year to Implement									
Project Name	Mgmt. area	Proj. Size	Dis-trict	86	87	88	89	90	91	92	93	94	95
Steambank rehabilitation - Ponderosa Picnic Area	1A	100 Feet	D-1	X									
Amphitheater rehabilitation - Ponderosa Picnic Are	1A	150 PAOT			X								
Campsite rehabilitation - Juniper Park Campground	1A	2 Units				X							
Construct toilet - Juniper Park Campground	1A	1 Each					X						
Landscape Trailer Dump Station - Four Mile Bench	2B							X					
Extent boat ramp - Enterprise Reservoir	10A								X				
Rehabilitate water system - Oak Grove Campground	1A	1 System								X			
Construct overflow camping - Pine Vally Campground	1A										X		
Add waste water facilities - Pine Valley Campgroun	1A	8 toilets										X	
Construct Blue Springs Point Campground	1A	250 POAT											X
Campground rehabilitation - Navajo Lake	1A		D-2									X	
Construct overflow camping - Panguitch Lake	1A						X						
Construct overflow camping - Duck Creek	1A						X						
Construct overflow camping - Navajo Lake	1A						X						
Harden campsites - Spruce Campground	1A	32 Units											X
Harden campsites - Cedar Canyon Campground	1A	19 Units											X
Construct winter sports parking - Midway	2B	1 Each											X
Construct winter sports parking - Navajo Lake	1A	1 Each											X
Construct winter sports parking - Strawberry	2B	1 Each											X
Construct trailhead facilities - West Fork Hunt Cr	2A		D-3										X
Construct trailhead facilities - East Fork Hunt Cr	2A												X
Construct campground - Deer Lake Trailhead		50 Units	D-4										X
Pine Lake Recreation Plan		1 Plan											X
Construct campground protection fences	1A	3 fences	D-5										X
Construct water system protection fences	1A	3 fences											X

Wilderness

				Fiscal Year to Implement									
Project Name	Mgmt. area		Dis-trict	86	87	88	89	90	91	92	93	94	95
Trail reconstruction - Pine Valley Wilderness	2A	3 miles	D-1		X	X	X						
Construct trialhead - Forsythe Trail	2B	1 each						X					
Construct trialhead - New Harmony Trail	5A	1 each						X					
Trail reconstruction - Ashdown Gorge Wilderness	8A	3 miles	D-2	X	X	X							
Construct trailhead - Twisted Forest	1	1 each						X					

Wildlife Project Implementation Schedule
Pine Valley District

MIH Code	Project Name	Project Description	Mgmt. Area	Ranger Dist.	Year to Implement 86	87	88	89	90	91	92	93	94	95	96	Remarks
001	Fish Habitat Survey	Survey Pinto Crk., Reservoir Cyn., Pine Park Cyn., Forsythe Cyn., Straight Cyn., Leeds Crk., Santa Clara River, Harmony Crk., Leap Crk., Mill Crk., Main Cyn. Crk., Little Pine Crk., Lost Crk., Rock Cyn., Pine Cyn., West Fork Spring. South Ash Crk., Mill Cyn., Rock Cyn. (Pine Valley), Little Pinto Crk., Holt Cyn., for fish habitat improvement potential.	9A/9B	D-1			X	X	X	X	X	X	X	X	X	To determine fisheries needs.
001	Prescribed Burning Plan	Develop prescribed burning plan for prospective areas on the Dist.	All	D-1				X								DWR input and priorities needed.
001	Grass Valley Fishery and Water Fowl Development	Investigate possibility of creating reservoir and wet land.	2B	D-1							X				X	Would need water right. T37S., R18W. Sec. 33
001	Enterprise Reservior Waterfowl development	Possible 100 acre wetland development and protection at upper end of reservoir.	2B	D-1			X									Feasibility study. T37S., R18W., Sec. 33.
002	North Hills Chaining T36S., R18W.	2,000 acre P-J chaining (Joint project with range)	1/5A	D-1	X	X	X									In wild horse mgmt. area.
002	Browse Release	100 acres/year	4C/5A	D-1	X	X	X	X	X	X	X	X	X	X		For deer/elk.
002	Cedar Bench Chaining	460 acre P-J chaining.	4C/5A	D-1				X	X							T41S., R15W., Sec. 5&6.
002	Holt Canyon Riparian Ecosystem	Establish riparian vegetation, control erosion, grazing mgmt.	9A	D-1											X	T37S., R16W.
002	Big Mountain Road Closure	Close 2 miles of road.	1		X											West of Mtn. Meadows. T39S., R16W., Sec. 5&8.
002	Water Canyon Road Realignment and closure.	Close upper end of road, realign lower part near the creek.	2B/9A	D-1	X											Try to accomplish in 86 if not, do 87. T39S., R14W., Sec. 7&8.
002	Leap Creek Road closure	1.5 miles above Browse Guard Stn.	4C	D-1	X											T39S., R13W., Sec. 17.
002	New Harmony Revegetation	Chain and seed 100 ac. on Forest in conjunction with BLM and DWR	5A	D-1	X											Critical winter range coop. with BLM/DWR. T38S., R13W., Sec. 9.
002	Ox Valley Prescribed Burn	20 acre experimental project. Burn sage within oak type.	1	D-1				X								Fawning habitat of Herd Unit 61-C. T38S., R17W., Sec. 16.

Wildlife Project Implementation Schedule
Pine Valley District

MIH Code	Project Name	Project Description	Mgmt. Area	Ranger Dist.	Year to Implement 86	87	88	89	90	91	92	93	94	95	96	Remarks
003	North Hills Water Develop.	Install 2 guzzlers.	5A	D-1				X	X							Done to compliment North Hills chaining. T36S, R18W, Sec. 13 & 36.
003	Mound Valley Water Develop.	Install fiberglass guzzler.	8A	D-1								X				In Pine Valley wilderness. T40S, R15W, Sec. 10.
003	Gordon Spring Meadow Protect. (Near Grants Ranch)	Close 100 yds. of road to discourage recreational horse use of meadow.	1	D-1		X										Develop horse watering facility away from the meadow. T38S, R14W, Sec. 36.
003	Trail Spring Pond (Near Pages Ranch)	Develop and fence pond, dispose of existing trough.	6A	D-1	X											Herd Unit 61B in P-J. T27S, R14W, Sec. 15.
003	Cottonwood Guard Station Water Development	Develop pond, repair pipeline.	5A	D-1	X											T41S, R15W, Sec. 9
003	Dry Flat Pond Construction	Build pond. Possible water fowl potential.	1	D-1								X				North of Grass Valley. T38S, R14W, Sec. 17.
003	Wood Bench Water Development	Pond construction and water fowl habitat development.	1	D-1									X			North of Grass Valley. T38S, R14W, Sec. 20.
003	Gunlock Dry Lake Pond Develop.	Pond construction in oak zone of deer herd unit 61-C.	1	D-1					X							Summer deer habitat. T38S, R17W, Sec. 9
003	Oak Spring Water Development	Pond construction in critical Fawning/summer range of Unit 61-C.	1	D-1			X									On Bull Valley Allot. T38S, R18W, Sec. 21.
003	Dry Lake Guzzler	Guzzler construction	1	D-1											X	Southwest of Cedar City T.375, R.13W., Section 16.
003	Staheli Spring Water Develop.	Develop spring and Pond.	6A	D-1		X										T38S, R16W, Sec. 3.
003	Paradise Water Development	Guzzler construction.	3A	D-1											X	T37XS, R14W, Sec. 33.
003	Cove Water Development	Pond reconstruction	4C	D-1			X									Present pond fills with sediment. South of New Harmony. T39S, R13W, Sec. 14.
003	Maple Spring Water Development	Spring development, protection fencing, and pond.	4C	D-1		X										Near Oak Grove, T40S, R14W, Sec. 17.

Wildlife Project Implementation Schedule
Pine Valley District

MIH Code	Project Name	Project Description	Mgmt. Area	Ranger Dist.	86	87	88	89	90	91	92	93	94	95	96	Remarks
003	Aspen Spring Water Development	Spring development, protection fencing, and pond.	1	D-1		X										Terry-Shoal Allot. T38S, R19W, Sec. 12.
003	Big Canyon Spring Development	Spring development and trough.	1	D-1			X									West Pinto Allot. T37S, R15W, Sec. 7&19.
003	Gardner Spring Development	Spring development, protection fencing, and pond.	1	D-1			X									Gunlock Allot. T38S, R17W, Sec. 26.
003	Sheep Corral Spring Develop.	Spring development and pond.	1	D-1				X								Terry-Shoal Allot. T38S, R19W, Sec. 11.
003	Rattlesnake Spring Develop.	Spring development and meadow seeding.	1	D-1			X									Good improvement potential. C022C03. T38S, R18W., Sec. 6.
003	Stud Horse Guzzler	Guzzler construction and protection fencing.	6A	D-1					X							T36S, R19W, Sec. 19.
003	Telegraph Draw Pond	Pond construction and protection fencing.	1	D-1						X						T36S, R18W, Sec. 16.
003	Truman Bench Water Develop.	Pond construction.	5A	D-1							X					T40S, R15W, Sec. 6.
003	Cedar Bench Water Develop.	Guzzler construction.	4C	D-1								X				T40S, R15W, Sec. 36.
003	Water Canyon Fish Habitat improvement	Instream and/or bank structures (15 struc.)	9A	D-1		X										T39S, R14W, Sec. 7.
001	Pinto Creek Bank Stabilization	Bank protections structures.	9A	D-1			X									Project planning in 87.
003	Rock Springs Water Development.	Pond construction.	1	D-1		X										Deer Unit 61A north of New Harmony, T37S, R13W, Sec. 28.
003	Horse Valley Water Develop.	Pond construction and protection fencing.	4C	D-1								X				T38S, R15W, Sec. 16.

Wildlife Project Implementation Schedule
Cedar City Ranger District

MIH Code	Project Name	Project Description	Mgmt. Area	Ranger Dist.	86	87	88	89	90	91	92	93	94	95	96	Remarks
001	Blue Spring Creek and Deer Creek Aquatic Habitat Survey	Survey of aquatic habitat and water chemistry to determine contribution of these streams to Panguitch Lake problems.	1/9A	D-2		X										Joint Study with Dixie watershed staff to determine forest's contribution to Panguitch Lake.

Wildlife Project Implementation Schedule
Cedar City Ranger District

MIH Code	Project Name	Project Description	Mgmt. Area	Ranger Dist.	Year to Implement 86	87	88	89	90	91	92	93	94	95	96	Remarks
001	Fish Habitat survey and examine project protection	Reeds Lake, Houston Pond, Round Meadow Pond, Red Creek, Little Creek, Bunker Creek, Stout Creek Sandy Creek, Swains Creek, Castle Creek, Louder Creek, Strawberry Creek, Lars Fork, Panguitch Creek Deep Creek, Ipson Creek, Butler Cre Hendrickson Lake, Ponds - Yankee Meadow area, Center Creek, Ponds - Sidney Valley, Bear Creek.	All	D-2			X									To determine fishery needs.
001	Panguitch Lake Water Quality Management Plan	Prepare plan to correct and control Forest pollutants going into Panguitch Lake.	1A/4A	D-2		X	X									Joint with watershed and staff coop with State.
002	Bear Valley Prescribed Burn	Burn 300 acres of sagebrush and PJ, Sec. 4, T32S, R6W.	1/6A	D-2	X											EA and burn plan to be done 1985.
001	Duck Creek Pond Improvement Feasibility Investigation	Dredge pond to deeper and improve fish habitat, Sec. 12, T38S, R8W.	4A	D-2								X				Dredging may break seal in pond bottom.
001	Aspen Mirror Lake Improvement Feasibility Investigation	Dredge pond to deeper and improve fish habitat.	4A	D-2										X		Dredging may break seal in pond bottom.
002	Buckskin Prescribed Burn	Burn 200 acres, Sec. 35, T32S, R7W.	1	D-2								X				Need EA and burn plan.
002	Yankee Meadows Waterfowl Habitat Improvement	Seed and protect 40 acres.	1	D-2											X	FS does not own 40 acres with waterfowl potential.
002	Browse Release	100/acres/year (Bitter brush release/P-J removal)	1	D-2		X	X	X	X	X	X	X	X	X	X	On deer/elk winter ranges.
002	Cottonwood Road Closure	Close 13 miles of road permanently in deer winter range.	4B	D-2		X										Complementary to Mineral Canyon project.
002	Five-Mile Chaining	Chain 500 acres of P-J in deer/elk winter range, Sec. 27, 28, 33 & 34, T34S, R6W.	6A	D-2		X	X	X								Needs archeological clearance & EA.
002	Little Creek Stream Improvement	Bank revegetation and protection, Sec. 8 & 9, T34S, R7W.	6A	D-2									X			
002	Mineral Canyon Pinyon-Juniper	Thin P-J on 200 acres.	4B	D-2		X										T33S., R7W, Sec. 8.
002	Three Mile Creek Stream Improvement	Bank revegetation and protection, Sec. 7, 8, 9 & 10, T34S, R6W	9A	D-2		X										In conjunction with instream and bank structural improvements.

Wildlife Project Implementation Schedule
Cedar City Ranger District

MIH Code	Project Name	Project Description	Mgmt. Area	Ranger Dist.	86	87	88	89	90	91	92	93	94	95	96	Remarks
					Year to Implement											
001	Navajo Lake Aeration Feasibiity Investigation	Examine alternative methods of aeration and costs/benefits, Sec. 7 & 8, R38S, R8W.	4A	D-2					X							In coop. with DWR.
001	Iron Peak Spring Water Development	Study feasibility of project, Sec. 19, T33S, R7W	1	D-2										X		
002	Willow Creek Chaining	Chain 300 acres of P-J, Sec. 16, T33S, R7W.	4B	D-2											X	
003	Tommy Creek Water Development T37S, R7W.	Guzzler construction, Sec. 8	1	D-2	X											Check KV plan for Tommy Creek Timber Sale.
003	Dead Lake Fish Habitat Improvement	Raise the lower dam to increase water sotrage. Construct adequate spillway, Sec. 36, T36S, R8W.	4A	D-2							X					Spillway repairs made in 1983, workstill needed. Coordinate with watershed.
003	Black Mountain Waterline	Install waterline (approx. 3 miles) and watering troughs.	3A/2B 7A	D-2					X	X	X					T37S, R6W. Good project, but problems. Cost 10 to 15 M$. Range and wildlife benefits.
003	Three Mile Creek Structural Improvement	Instream and bank structures for fish habitat and channel stabilization.	7A	D-2								X	X	X		Done in conjunction with revegetation work and grazing mgmt. T34S, R6W.
003	Blue Spring Creek Fish Habitat Improvement	Bank and/or instream structurs.	1/1A	D-2					X	X	X					Complete after aquatic and water chemistry studies are done. T36S, R7W.
002	Deer Creek Fish Habitat Improvement	Band and/or instream structural improvement.	9A	D-2										X		Complete after aquatic and water chemistry studies are done. R8W, T36S.
003	Lowder Creek Pond Fish Habitat Improvement	Increase storage, improve dam, Sec. 19, T36S, R8W.	2A	D-2				X								
003	Twin Lake Fish Habitat Improvement	Repair dam, Sec. 18, T36S, R7W.	1	D-2						X						
003	Tommy Creek Fish Habitat Improvement and Channel	Control erosion problems in headwaters. Stabalize and protect banks.	9A	D-2						X	X					Joint project with watershed staff (Tippets Valley Timber Sale). T375, R8W.

Wildlife Project Implementation Schedule
Cedar City Ranger District

MIH Code	Project Name	Project Description	Mgmt. Area	Ranger Dist.	86	87	88	89	90	91	92	93	94	95	96	Remarks
C03	Butler Spring Protection Fencing	Construct exclosure around spring source.	1	D-2						X						T35S, R7W, NW¼ Sec. 10.
C03	Tippets Valley Waterfowl Habitat Improvement	Develop waterfowl habitat by pothole construction or diking. Sec. 22 & 23, T37S, R8W.	7A	D-2											X	Sec. 22 & 23, T37S, R8W. (Tippets Valley Timber Sale).
C03	Reeds Valley Waterfowl Habitat Improvement	Develop, imporve waterfowl habitat. Sec. 2, T37S, R8W,	2A	D-2											X	Done in conjunction with existing improvement.
C03	Sandy Creek Water Development	Pond construction and protection, Sec. 28, T33S, R6W.	6A	D-2	X											
C03	Reeds Lake Fish Habitat Improvement	Raise and improve dam to increase storage and improve the fishery.	2A	D-2											X	Done in conjunction with waterfowl improvement work. T37S, R8W, Sec. 2.
C03	Five Mile Water Development	Guzzler construction, Sec. 34, T34S, R6W.	6A	D-2											X	Schedule after the Five Mile Chaining is done.
C02	Sandy Creek Burn	Burn 300 acres of sagebrush.	6A	D-2											X	
C02	Three Creek Chaining and Seeding	Chain 500 acres of P-J on Deer/Elk winter ranger.	1	D-2											X	T33S, R6W, Sec. 22, 14 & 22.

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Wildlife Project Implementation Schedule
Powell Ranger District

MIH Code	Project Name	Project Description	Mgmt. Area	Ranger Dist.	86	87	88	89	90	91	92	93	94	95	96	Remarks
C01	Fish Habitat/Project Potential Survey	Deer Creek	9A	D-3												During 86-90.
C01	Fish Habitat/Project Potential Survey	Deep Creek	5A	D-3												During 86-90.
C01	Fish Habitat/Project Potential Survey	East and West Hunt Creek	9A	D-3												During 86-90.
C01	Fish Habitat/Project Potential Survey	Cottonwood Creek	9A	D-3												During 86-90.
C01	Fish Habitat/Project Potential Survey.	Hancock Creek	5A	D-3												During 86-90.
C01	Fish Habitat/Project Potential Survey.	Kanab Creek	6A/9A	D-3												During 86-90.

Wildlife Project Implementation Schedule
Powell Ranger District

MIH Code	Project Name	Project Description	Mgmt. Area	Ranger Dist.	86	87	88	89	90	91	92	93	94	95	96	Remarks
					Year to Implement											
C01	Fish Habitat/Project Potential Survey.	Podunk Creek	6A	D-3												During 86-90.
C01	Fish Habitat/Project Potential Survey.	Blubber Creek	2A/9A	D-3												During 86-90.
C01	Fish Habitat/Project Potential Survey.	Badger Creek	9A	D-3												During 86-90.
C01	Fish Habitat/Project Potential Survey.	Robinson Creek	6A	D-3												During 86-90.
C01	Fish Habitat/Project Potential Survey.	Pine Creek	5A/7A	D-3												During 86-90.
C01	Fish Habitat/Project Potential Survey.	Sanford Creek	2A/5A	D-3												During 86-90.
C01	Pronghorn Habitat Improvement	Investigate with DWR, Habitat enhancement possibilities.	5A/6A	D-3		X										Johns Valley.
C01	Sagegrouse Habitat Improvement	Investigate with DWR, habitat enhancement possibilities.	All	D-3		X										Also transplant potential.
C01	Turkey Habitat Improvement and Transplant potential.	Investigate with DWR, habitat enhancement and transplant possibilities.	All	D-3			X									
C01	Pat Willis Draw Waterfowl Improvement	Investigate development possibilities.	6A	D-3				X								
C01	Blubber Creek Exclosure	10 acre exclosure at the mouth of Blubber Creek.	6A/9A	D-3		X									X	Investigate wildlife benefits of this project.
C01	Podunk Creek Exclosure	10 acre exclosure at the mouth of Pudunk Creek.	6A	D-3		X										Investigate wildlife benefits of this project.
C01	Fish Habitat/Project Survey	Rocky Ford Creek	5A	D-3				X							X	
C01	East Fork Fish and Riparian Ecosystem Improvement Plan	Long range fish/riparian ecosystem restoration action plan for East Fork Sevier River and headwater Tributaries.	1B/2B 4A/6A	D-3		X	X									Investigate waterfowl opportunities.
C01	Prescribed Burning Plan	District wide presc. burning plan. To identify areas with burning potential.	All	D-3	X	X										

Wildlife Project Implementation Schedule
Powell Ranger District

MIH Code	Project Name	Project Description	Mgmt. Area	Ranger Dist.	Year to Implement 86	87	88	89	90	91	92	93	94	95	96	Remarks
001	Tropic Reservoir Fish Water-Fowl Project Potential Survey	Investigate feasibility of increasing conservation pool, fish growth problems, permanent wetland at upper end.	4A	D-3			X	X								
001	Aspen Management Plan for Wildlife Habitat Improvement	District wide plan to identify management opportunities to benefit wildlife.	All	D-3				X	X							
001	Utah Praire Dog Project Pottial Investigation.	Identify project possibilities at transplant sites and other locations.	5A/6A	D-3			X									Coop. with DWR.
001	Pinyon-Juniper Management Plan for Wildlife Habitat Improvement.	District wide plan to identify management opportunities to benefit wildlife.	5A/6A						X							
002	East Fork Sevier Bank Stabilization	Non-structural stabilization bank reshaping, revegetation.	1B/2B 4A/6A	D-3	X	X	X	X	X	X	X	X	X			
002	Jones Corral Chaining	500 Acres north of Pole Cyn. (R2W T31S Secs. 10,11,12,13,14) Isolated tracts.	5A					X	X	X						
002	Jones Corral/Table Mtn. Prescribed Burning.	2,000 of 3,000 acres in burn plan left to do. Mostly sagebrush, some aspen.	5A	D-3	X	X	X	X	X							
002	Jones Corral/Table Mtn. Aspen Management.	Clearcut 200 acres.	5A	D-3					X	X	X					Investigate commercial harvest.
002	Mud Spring Watershed Rehabilitation	Joint wildlife/watershed revegetwork. To benefit sage grouse/big game.	5A	D-3			X									
002	Hillsdale Browse Release	Remove pinyon-juniper on 100 acres to release bitterbrush understory.	2A/5A	D-3		X										Commercial Firewood sale. Deer and elk winter and transition range.
003	Mud Flat/Table Mtn. Water Development.	Construct 2 guzzlers.	5A	D-3		X										
003	Blue Fly Water Development	Guzzler construction	7A	D-3				X								
003	Little Cow Creek Water Dev.	Construct 2 ponds in elk summer range.	5A	D-3		X										
003	Marshall Canyon Water Dev.	Guzzler construction	5A	D-3			X									In 1984 chained area.

Wildlife Project Implementation Schedule
Powell Ranger District

MIH Code	Project Name	Project Description	Mgmt. Area	Ranger Dist.	Year to Implement 86	87	88	89	90	91	92	93	94	95	96	Remarks
003	East Fork Sevier River Structural Bank Stabilization	Bank and instream structural Fish and riparian ecosystem improvements.	2B/4A 6A	D-3	X	X	X	X	X	X	X	X	X	X		Work in conjunction with East Fork nonstructural improvement.
003	East Fork Sevier Raptor Habitat Improvement	Erect raptor perch poles at tropic Res. and locations on East Fork.	4A/6A	D-3		X										Enlist cooperation from Garkane Power Co.
003	Hunt Creek Fish Habitat Improvement	Install drop structures to improve pool: riffle ratio and to raise water.	9A	D-3							X	X	X			Possible wildlife/watershed coop. project.
003	Deep Creek Fish Habitat Improvement	Install drop structures to improve pool: riffle ratio	5A	D-3						X	X	X				
003	Tom Best Spring Water Development	Source protection, pond construction.	2A	D-3				X								Waterfowl and other species benefits. Need water right & boundary check.
003	Ahlstrom Hollow Water Development	Develop water source primarily for sage grouse.	6A			X										
003	Beebe Spring Pipeline Extension	Extend existing pipeline to provide wildlife water.	6A	D-3	X											Range/Wildlife coop. project.

Wildlife Project Implementation Schedule
Escalante Ranger District

MIH Code	Project Name	Project Description	Mgmt. Area	Ranger Dist.	Year to Implement 86	87	88	89	90	91	92	93	94	95	96	Remarks
001	Fish Habitat/Project Potential Survey	Pine Creek	9A	D-4				X								
001	Prescribed Burning Plan	District-wide prescribed burning plan to identify areas with burning potential	All	D-4			X									
001	Aspen Mangement Plan	District-wide plan to identify management opportunities to benefit wildlife.	All	D-4					X							Include commercial harvest.
001	Long Neck Mesa Revegetation	1000 acres of P-J chain or burn; feasibility investigation.	2A	D-4	X											Some BLM land. Land trade could add acreage.
001	Ormand Pt. (Pretty Tree Bench) chaining	Feasibility investigation.	5A	D-4			X									Coordinate with DWR.

Wildlife Project Implementation Schedule
Escalante Ranger District

MIH Code	Project Name	Project Description	Mgmt. Area	Ranger Dist.	86	87	88	89	90	91	92	93	94	95	96	Remarks
					Year to Implement											
001	King's Bench Revegetation	Investigate best method of P-J treatment.	5A	D-4		X										High priority project near wilderness boundary. May have arch sites.
001	Boulder Creek Meadow Exclosure	Exclosure fence 17 acre wet	3A	D-4						X						East Fork Boulder Creek.
001	Auger Hole Lake Fish and/or	Feasibility investigation of improvement possibilities.	9A	D-4						X						
001	Beaver Pond Enhancement	Cleaning of filled-in beaver ponds to improve fisheries.	3A	D-4						X	X	X				Bear Lake (Head of Bear Cr.) an example.
001	Wet Meadow Exclosure Fencing	Side Hollow, Sec. 5, T33S, R4E.	6A	D-4						X						Feasibility investigation.
001	Wet Meadow Exclosure Fencing	North Creek. Investigate feasibility.	1A	D-4										X		Barker Lake T33S, R1E, Sec. 19.
001	Wet Meadow Exclosure Fencing	Shurtz Ranch (on Pine Creek). Investigation feasibility.	6A	D-4										X		T32S, R2E, Sec. 24.
001	Pine Lake Waterfowl Area	Protection fence 30 acres on south side. Investigate feasibility.	1A	D-4										X		
001	Rock Bench Revegetation Browse Release	Treat 300 acres by burning, thinning, etc.	2A/2B	D-4		X										
002	Willow Meadows Reservoir Exclosure	Fence 20 acres. Cannan Mountain, Sec. 23, T36S, R1E.	1	D-4					X							
003	Rob's Reservoir Fish Habitat Improvement	Raise dam to increase reservoir size to allow overwintering of fish.	4A	D-4			X									Also rip-rap dam.
003	Posey Lake Diversion	Divert water to Posey Lake to improve water quality.	1A	D-4											X	Divert water from John Allen Bottom.
003	Pacer Lake Dam Modification	Raise dam to increase reservoir and overwinter fish.	9A									X				Approx. $8,000 needed to purchase conservation pool.
003	Griffin Spring Water Development	Spring development and source protection, Sec. 26, T33S, R1W.	2B	D-4			X									On griffin Top. Need to provide water for livestock also.

Wildlife Project Implementation Schedule
Escalante Ranger District

MIH Code	Project Name	Project Description	Mgmt. Area	Ranger Dist.	Year to Implement 86	87	88	89	90	91	92	93	94	95	96	Remarks
003	Sweetwater Exclosure	Fence 20 acre stream and wet meadow area east of Widtsoe Jct.	2B	D-4		X										Repair of existing exclosure.
003	Cyclone Lake Waterfowl Area	Protection fence 25-100 acre	2B	D-4											X	Repair of existing exclosure.
003	Antimony Creek Fence Modification	Modify 5 miles of fence to allow better big game crossing. One/mile year.	9A	D-4		X	X	X	X	X						
002	Browse Release	100 acres/year Cut invading P-J releasing bitterbrush.	All	D-4	X	X	X	X	X	X	X	X	X	X	X	For deer/elk.
002	Long Neck Mesa Revegetation	Revegetation in 1000 acres of P-J.	2A/3A	D-4				X								Feasibility study in 1986.
002	Ormand Point Revegetation	Chain 600 to 1200 acres.	5A	D-4						X						Feasibility study in 1988.
002	King's Bench Revegetation	800 to 1200 acres.	5A	D-4					X							Feasibility study in 1987.
002	Rock Bench Revegetation	300 acres.	2A/2B	D-4						X						Feasibility study in 1987.
003	Pine Creek Fish Habitat Impr.	Instream and bank structures to improve cover and pool habitat.	9A	D-4					X							Banks need work above Cowpuncher Guard Station.

Wildlife Project Implementation Schedule
Teasdale Ranger District

MIH Code	Project Name	Project Description	Mgmt. Area	Ranger Dist.	Year to Implement 86	87	88	89	90	91	92	93	94	95	96	Remarks
002	Browse Release	100 acres/year (Bitterbrush release)	2A/5A	D-5	X	X	X	X	X	X	X	X	X	X	X	For deer/elk.
002	North Big Lake Aspen Treatment Conjunction with Timber Sale	Cut select patches of over mature aspen to stimulate younger aspen spouts.	2B	D-5					X	X						T31S, R2E, Sec. 28.
002	Browse Planting North and West Sides	Plan bitterbursh and Saltbrush seedings in select areas on the North slope and West side. 200 ac.	5A	D-5							X	X				T30S, R4E, Sec. 8,9 16,17.

Wildlife Project Implementation Schedule
Teasdale Ranger District

MIH Code	Project Name	Project Description	Mgmt. Area	Ranger Dist.	86	87	88	89	90	91	92	93	94	95	96	Remarks
					Year to Implement											
002	Government Creek Winter Range Improvement	Improve 200 acres of winter range.	5A	D-5					X	X	X	X				T29S, R3E, Secs. 22, 23,24,28,27,26,33 & 34.
003	East Slopes Fence modification	Modify 20 miles of fence to allow better big game passage (2 miles per year).	4B/6A	D-5		X	X	X	X	X	X	X	X	X	X	
003	Horseshoe Lake Dam Reconstruction	Redesign dam to raise the outlet works and create a conservation pool.	3A	D-5						X						T31S, R4E, Sec. 21
003	Logging Grove Water Develop.	Pond construction.	6A	D-5			X									T30S, R2E, Sec. 36
003	Wide hollow Water Development	Pond construction.	7A	D-5			X									T30S, R5E, Sec. 28
003	Big Lake Aeration (On Boulder Top)	Construct and install wind powered aerator.	9A	D-5				X								T31S, R4E, Sec. 14
003	Purple Lake Aeration	Construct and install wind powered aerator.	7A	D-5		X										T31S, R3E, Sec. 33
003	North Slope Water Development	Pond construction.	10E	D-5					X							T29S, R4E, Sec. 31.
003	Dark Valley Waterfowl Develop.	Dike construction and marsh devel.	4A	D-5	X	X										T31S, R3E, Sec. 5
003	Birch Spring Water Development	Pond construction and protection fencing.	5A	D-5				X								T29S, R3E, Sec. 27
003	Spring Creek Water Development	Pond construction.	7A	D-5							X					T30S, R5E, Sec. 20
003	Pine Creek Fish Habitat Improvement	Instream and bank structural improvement.	9B	D-5			X									T30S, R3E, Sec. 15.
003	Pine Creek Reservoir	Dam Reconstruction	9B	D-5						X						T30S, R3E, Sec. 15.
003	Dry Bench Water Development	Construct guzzler on deer and elk winter range.	4B	D-5				X								T32S, R6E, Sec. 1
003	Sulphur Creek Water Develop.	Construct guzzler in chained area.	4B	D-5										X		T30S, R6E, Sec. 20
003	Rim Lake Aerator	Construct and install wind powered aerator.	2B	D-5					X							T31S, R4E, Sec. 30
003	Edmond's Hole Water Develop.	Reconstruct Edmond's Hole Pond.	6A	D-5						X						T32S, R5E, Sec. 14
002	Happy Valley Winter RAnge	Improve 300 acres.	4B	D-5		X	X	X	X							T30S, R6E, Sec. 31.

Tentative Project Implementation Schedule
Range

MIH Code	Project Name	Project Description	Mgmt. Area	Ranger Dist.	86	87	88	89	90	91	92	93	94	95	96	Remarks
					Year to Implement											
D01	Range Planning	Annual updating of allotment plans.	All	All	X	X	X	X	X	X	X	X	X	X	X	
D02	Range Allotment Analysis (RAA)	Annual Update RAA on all allotment.	All	All	X	X	X	X	X	X	X	X	X	X	X	
D03	North Hills Chaining	Chain and reseed 2,000 acres.	1/5A	D-1	X	X	X									Joint WL project.
	Noxious Weed Control	Spot control 40 acres of noxious weeds per year.	All	D-1	X	X	X	X	X	X	X	X	X	X	X	
	Noxious Weed Control	Spot control 5 acres of noxious weeds per year.	All	D-2	X	X	X	X	X	X	X	X	X	X	X	
	Noxious Weed Control	Spot control 5 acres of noxious weeds per year.	All	D-3	X	X	X	X	X	X	X	X	X	X	X	
	Noxious Weed Control	Spot control 5 acres of noxious weeds per year.	All	D-4	X	X	X	X	X	X	X	X	X	X	X	
	Noxious Weed Control	Spot control 5 acres of noxious	All	D-5	X	X	X	X	X	X	X	X	X	X	X	
D04	Sagebrush/P-J Control	Control of P-J and sagebrush invading reseedings - 300 acres/year.	All	D-1	X	X	X	X	X	X	X	X	X	X	X	
	Sagebrush/P-J Control	Control of P-J and sagebrush invading reseedings - 200 acrs/year.	All	D-2	X	X	X	X	X	X	X	X	X	X	X	
	Sagebrush/P-J Control	Control of P-J and sagebrush invading reseedings - 300 acres/year.	All	D-3	X	X	X	X	X	X	X	X	X	X	X	
	Sagebrush/P-J Control	Control of P-J and sagebrush invading reseedings - 200 acres/year.	All	D-4	X	X	X	X	X	X	X	X	X	X	X	
	Sagebrush/P-J Control	Control of P-J and sagebrush invading reseedings - 50 acres/year.	All	D-5	X	X	X	X	X	X	X	X	X	X	X	
D05	Water Development Construction/Reconstruction	Construct or reconstruct 2 water developments/year.	All	D-1	X	X	X	X	X	X	X	X	X	X	X	
	Water Development Construction/Reconstruction	Construct or reconstruct 2 water developments/year.	All	D-2	X	X	X	X	X	X	X	X	X	X	X	
	Water Development Construction/Reconstruction	Construct or reconstruct 2 water developments/year.	All	D-3	X	X	X	X	X	X	X	X	X	X	X	

X

Wildlife Project Implementation Schedule

Range

MIH Code	Project Name	Project Description	Mgmt. Area	Ranger Dist.	Year to Implement 86	87	88	89	90	91	92	93	94	95	96	Remarks
	Water Development	Construct or reconstruct 2 water developments/year.	All	D-4	X	X	X	X	X	X	X	X	X	X	X	
	Water Development Construction/Reconstruction	Construct or reconstruct 1 water developments/year.	All	D-5	X	X	X	X	X	X	X	X	X	X	X	
	Fence Reconstruction	Reconstruct 2 miles of fence/year.	All	D-1	X	X	X	X	X	X	X	X	X	X	X	
	Fence Reconstruction	Reconstruct 2 Miles of fence/year.	All	D-2	X	X	X	X	X	X	X	X	X	X	X	
	Fence Reconstruction	Reconstruct 2 miles of fence/year.	All	D-3	X	X	X	X	X	X	X	X	X	X	X	
	Fence Reconstruction	Reconstruct 2 miles of fence/year.	All	D-4	X	X	X	X	X	X	X	X	X	X	X	
	Fence Reconstruction	Reconstruct 1 mile of fence/year.	All	D-5	X	X	X	X	X	X	X	X	X	X	X	
	Wild Horse Management	Protect, control, manage North Hills wild horses in cooperation with BLM.	All	D-1	X	X	X	X	X	X	X	X	X	X	X	

Timber Project Implementation Schedule
Timber Sale Schedule (MMBF)

					MILES OF_ROAD		SPECIES VOLUME			Year to Implement and TOTAL VOLUME												
NO.	SALE NAME	MGMT. AREA	AREAS TO BE CUTOVER	DIS-TRICT	C	L	PP	ES	MIXED	85	86	87	88	89	90	91	92	93	94	95	TSI ACRES	REFOR-ACRES
1.	Tommy Creek	1,2B,7A	600,200,1200	2	1.6	9.9	4.0			4.0											500	0
2.	Sage Valley	7A,2B	1300,210	2	2.8	5.1		4.0		4.0											265	0
3.	Crawford Creek	7A	200	3	0.0	5.0			1.0	1.0											0	200
4.	Kings Creek	7A	600	3	0.0	8.0	2.7			2.7											300	50
5.	Wilson Peak	5A,7A	200,500	3	0.0	6.0	0.5			0.5											300	100
6.	Side Hollow	7A	1779	4	0.0	5.0	10.6			10.6											1434	306
7.	Clay Creek	7A	919	4	0.0	0.0	1.2			1.2											689	230
8.	Garkane	7A	1240	4	0.0	2.0	4.4			4.4											981	259
9.	Big Lake	7A	423	5	0.5	2.5		1.5		1.5											423	0
10.	Peterson 4 & 5	7A	157,128	5	0.0	0.0		0.6		0.6											150	0
11.	Pleasant Creek	2B,4B,7A	50,30,240	5	0.0	1.8	2.0				2.0										213	0
12.	Adair Hollow	7A,1	1500,300	2	5.0	3.5	8.0				8.0										300	0
13.	Delong Flat	1	346	2	0.0	7.1		2.5			2.5										100	0
14.	Blubber Creek	6A,7A	300,900	3	0.0	70.0			7.0		7.0										0	1000
15.	Cyclone	7A	1961	4	0.0	1.5		6.2			6.2										1896	68
16.	Peterson 6 & 7	7A	77,92	5	0.0	0.0		0.5			0.5										169	0
17.	Pleasant	7A	92	5	0.0	0.0	0.1				0.1										30	10
18.	Windmill	7A	878	5	1.5	5.0	2.3					2.3									478	100
19.	Blowhard	7A,2B	1200,300	2	3.3	9.0		4.0				4.0									300	0
20.	Lars Fork	7A	1000	2	7.0	6.0			4.0			4.0									250	0
21.	Deer Mountain	2B,7A	100,713	4	0.0	1.0	4.4					4.4									724	89
22.	Under Barney	7A	500	4		2.0			2.7			2.7									704	96
23.	Lost Creek	4D,7A	100,655	4	0.0	1.0	3.0					3.0									534	66
24.	Peterson 8 & 9	7A	91,107	5	0.0	0.0		0.5				0.5									100	0
25.	Lower Oak Creek	7A	69	5	0.0	0.4	0.3					0.3									30	20
26.	Dave's Hollow	7A	1170	3			0.3					0.3										
27.	Upper E. Fork	7A	1000	3	0.0	8.0			3.0				3.0								50	800
28.	Upper Swains	7A,1	1140,60	2	2.0	1.6			4.0				4.0								250	0
29.	Kanab Creek	7A	1000	3	0.0	8.0			3.0				3.0								0	900
30.	Stump Springs	7A	1000	4	0.0	0.5	4.5						4.5								890	110
31.	Cannan Mt.	1,7A	80,520	4	0.0	1.5		2.0					2.0								3098	422
32.	Peterson 10 & 11	7A	81,127	5	0.0	0.0		0.5					0.5								104	0
33.	North Big Lake	7A	664	5	5.0	2.6			3.0				3.0								644	20
34.	Duck Creek Sinks	7A	2000	2	0.0	7.4	3.5						3.5								350	0
35.	Tippets Valley	7A,1	1650,350	2	0.0	7.5			4.0					4.0							200	0
36.	Cooks Pasture	2B,3A,7A	90,40,975	5	0.5	2.1		1.5						1.5							1105	0
37.	Rosebud	2B,7A	80,160	5	0.0	1.4	0.3							0.3							140	100
38.	Hancock Peak	1	1500	2	1.0	8.7			3.0					3.0							200	0
39.	Mt. Dutton	5A,7A	100,900	3	0.0	3.0			3.5					3.5							100	600
40.	Velvet Lake	7A	1400	4	3.5	2.0			4.0					4.0							1232	168
41.	Black Forest	7A	800	4	0.0	3.5			3.6					3.6							2640	360
42.	Peterson 12	7A	92	5	0.0	0.0			0.2					0.2							46	0
43.	Bob's Hole	2B,7A	50,218	5	0.0	1.5	0.3							0.3							200	50
44.	Dark Valley Shelf	7A	1251	5	1.2	7.6		2.0							2.0						1251	0
45.	North Slope	7A	551	5	0.5	2.5	2.0								2.0						451	100
46.	Strawberry Ridge	7A	3600	2	0.0	32.0			8.0						8.0						500	125
47.	Coyote Hollow	7A	1300	4	0.0	3.0		4.0							4.0						1144	156

Timber Project Implementation Schedule
Timber Sale Schedule (MMBF)

NO.	SALE NAME	MGMT. AREA	AREAS TO BE CUTOVER	DISTRICT	MILES OF_ROAD C	L	SPECIES VOLUME PP	ES	MIXED	85	86	87	88	89	Year to Implement and TOTAL VOLUME 90	91	92	93	94	95	TSI ACRES	REFOR- ACRES
48.	Raft Lake	2B,7A	15,1222	5	0.9	3.0		1.8							1.8						1240	0
49.	Sieler Creek	7A	300	3	0.0	4.0			1.5							1.5					0	300
50.	Podunk	7A	400	3	0.0	3.0			1.0							1.0					0	400
51.	Mill Hollow	7A	400	3	0.0	10.0	0.5									0.5					100	100
52.	Casto Canyon	7A	600	3	0.0	32.0	0.5									0.5					100	200
53.	East Creek	7A	675	3	0.0	15.0	0.5									0.5					200	200
54.	Roundy	7A	1080	4	0.0	0.5		3.0								3.0					950	130
55.	Ice Caves/Willis Creek	7A	4820	2	0.0	32.5			8.0							8.0					500	250
56.	Upper E. Fork/ Kanab	7A	500	3	0.0	3.0			0.5							0.5					100	300
57.	Dairy Hollow	7A	300	3	0.0	2.0			0.5							0.5					100	50
58.	Badger Creek	7A	200	3	0.0	3.0			0.3							0.3					100	100
59.	Blue Fly	7A	600	3	0.0	2.0	0.7									0.7					200	100
60.	North End	7A	200	3	0.0	2.0			1.0							1.0					0	0
61.	Jacob's Valley	7A	3000	4	9.0	3.0		3.4								3.4					2650	360
62.	Main Ca.	1,7A	200,520	4	0.0	0.5	4.0									4.0					641	79
63.	Purple Lake	7A	1800	5	4.0	5.1		4.5								4.5					1800	0
64.	Dog Lake	2B,7A	30,126	5	0.0	1.0		0.3								0.3					156	0
65.	Stout Canyon	1	6500	2	0.0	6.8	1.0										1.0				250	0
66.	Duck Creek Bench	7A,1A	860,150	2	0.0	7.4			2.0								2.0				200	0
67.	Dry Camp	7A	1920	2	0.0	12.5			4.0								4.0				300	0
68.	Birch Creek	7A	150,350	4	0.0	0.5	4.0										4.0				445	55
69.	Boulder Swale	7A	3520	4	0.0	2.0		3.0									3.0				3098	4022
70.	Dark Valley 1,2 3,4,5	7A	1500	5	0.0	9.0		1.5									1.5				1600	0
71.	Donkey Meadows 1,2	7A	710	5	1.4	2.1		1.0									1.0				708	0
72.	Beef Meadows 1,2	7A	1760	5	4.0	5.0		3.0									3.0				1763	0
73.	Radar Ridge	7A,2B	500,100	2	0.0	14.6		2.0										2.0			100	0
74.	Blue Springs	1	1850	2	0.0	16.5			4.0									4.0			350	0
75.	Iron Springs	7A	800	4	0.0	0.5		3.5										3.5			704	96
76.	Pacer Lake	7A	1400	4	0.0	0.0		3.5										3.5			1232	168
77.	Upper Valley	7A	500	4	0.0	0.0	1.0											1.0			445	55
78.	Lion Mountain	7A,4B	368,92	5	0.0	2.6	1.5											1.5			350	110
79.	Stink Flat	2B,7A	50,1460	5	2.1	4.3		3.0										3.0			1513	0
80.	Philo NE	7A	60	5	0.0	0.0		0.1										0.1			60	0
81.	Haycock Mountain	1	750	2	0.0	20.0	1.0											1.0			300	0
82.	Sidney Valley	1,2A	1620,1080	2	0.0	18.6		4.0											4.0		350	0
83.	Deer Valley	7A,2A	1000,80	2	0.0	34.1		2.0											2.0		150	0
84.	Reeds Valley	2A	900	2	0.0	10.4			2.0 (ASP)										2.0		250	0
85.	The Pockets	7A	1300	4	2.5	1.0		3.0											3.0		144	156
86.	Bug Lake	4D,7A	167,333	4	0.0	1.5		1.0											1.0		440	60
87.	Dipping Vat	5B,7A	60,240	4	0.0	0.0	1.0												1.0		267	33
88.	Griffin Spring	7A	450	4	0.0	0.5		1.0											1.0		396	54
89.	North Dark Valley Shelf	7A	1120	5	1.6	6.4		1.0											1.0		1116	0
90.	Pleasant Meadows	7A	1800	5	3.0	5.1		3.5											3.5		1800	0
91.	Cross Roads	7A	157	5	0.0	0.5		0.4											0.4		157	0
92.	Club Spring	1	650	2	0.0	9.5			1.0											1.0	100	0
93.	Yankee Meadow	1,6A	2140,550	2	0.0	17.1			5.0											5.0	350	0
94.	Fivemile	1	950	2	0.0	8.7	1.0													1.0	150	0

Timber Project Implementation Schedule
Timber Sale Schedule (MMBF)

					MILES OF_ROAD		SPECIES VOLUME								Year to Implement and TOTAL VOLUME							
NO.	SALE NAME	MGMT. AREA	AREAS TO BE CUTOVER	DIS- TRICT	C	L	PP	ES	MIXED	85	86	87	88	89	90	91	92	93	94	95	TSI ACRES	REFOR- ACRES
95.	Beck Hollow	1,7A,4D	80,450,100	4	0.0	0.0	2.0													2.0	561	69
96.	South Point	2B,7A	60,2440	5	5.2	7.1			4.5											4.5	2500	0
97.	Grass Lake	7A	600	5	1.0	2.2			0.4											0.4	600	0
	Total All Supervisor Sales		99,121							30.5	26.3	21.5	23.5	20.4	17.8	30.2	19.5	19.6	18.9	13.9		
	Misc. Small Sales						73.1	79.3	89.7	9.3	7.7	7.4	5.8	6.2	1.9	2.4	2.3	2.3	1.9	1.2		
	Grand Totals									39.8	34.0	28.9	29.3	26.6	19.7	32.6	21.8	21.9	20.8	15.1		
	Allowable Sale Quantity (Average 26.4 MMBF)									39.8	34.0	28.9	29.3	26.6	19.7	32.6	21.8	21.9	20.8	15.1		

1/Include Fuelwood, Poles and Posts

Project Name	Mgmt. Area	Proj. Size	District	Fiscal Year to Implement									
				86	87	88	89	90	91	92	93	94	95
Watershed Improvements			D-1										
Further Water		7 Acres											X
Iron Town Wash		20 Acres				X	X	X					
Richie Flat		60 Acres							X	X	X	X	
Water Canyon		10 Acres			X								
Watershed Improvements			D-2										
Billingsley Creek		30 Acres										X	X
Blowhard		3 Acres											X
Lake Hollow		15 Acres						X	X				
Mexican Hollow		14 Acres				X	X						
Pass Creek		20 Acres							X	X	X		
Miller Seep		9 Acres										X	X
Rock Canyon		20 Acres								X	X		
Shingle Mill		10 Acres			X								
Sugarloaf Road		3 Acres										X	
Swains Creek		28 Acres		X	X								
Webster Flat Pit		2 Acres											X
Yankee		3 Acres									X		
Tippets Valley		63 Acres					X	X	X	X	X		
Watershed Improvements			D-3										
Badger Creek		50 Acres		X	X								
Bluefly		50 Acres			X	X	X	X	X				
Lower East Fork		9 Acres								X	X		
Upper East Fork		12 Acres								X	X		
Hancock		20 Acres										X	X
Kanab Creek		20 Acres					X	X					
Mud Springs		45 Acres			X	X	X	X					
Pat Willis		12 Acres							X	X			
Skunk Creek		25 Acres							X	X			
Upper East Creek		20 Acres										X	X
Ahlstrom Hollow		60 Acres						X	X	X	X	X	
Blubber Creek		30 Acres				X	X						
Robinson Canyon		15 Acres										X	X
Watershed Improvements			D-4										
Cameron Wash		30 Acres		X	X								
Cow Puncher		15 Acres						X	X				
Hog Ranch		15 Acres								X	X		
Horse Creek		20 Acres										X	X
Horse Spring Draw		20 Acres										X	X
Pine Lake		30 Acres		X	X	X							
Sand Creek		2 Acres					X						
Sweetwater		25 Acres						X	X				
Varney Griffin		25 Acres					X	X					
Watershed Improvements			D-5										
Small gully rehab. projects		25 Acres					X	X	X	X	X		
Soil Resource Inventory			All										
Order 3 Soil Survey Area 646	All	60,000 Acres		X	X	X	X	X	X	X	X		

FOREST ACTION SCHEDULE

Instream Flow Quantification
Priority of Investigation

1ST PRIORITY

Respond to all out-service proposals for stream diversions for hydropower, irrigation purposes, etc.

2ND PRIORITY

Streams in Virgin River Adjudication area (includes as minimum):

- Santa Clara River and upper tributaries
- Water Canyon Creek
- Reservoir Canyon Creek
- Mill Creek
- Magotsu Creek
- Moody Wash
- Pine Park Canyon Creek
- Harrisburg Creek (Quail Creek)
- Leeds Creek
- Wet Sandy Creek
- South Ash Creek and tributaries
- Dam Canyon
- Comanche Creek
- Pinto Creek
- Deep Creek
- Mill Creek
- East Fork Virgin River
- Shingle Mill Creek
- Stout Canyon Creek

3RD PRIORITY

Streams tributary to Cedar, Parowan, and Escalante Valleys (includes as minimum):

- Crow Creek
- Ashdown Creek and tributaries
- Center Creek
- Bowery Creek
- Red Creek
- Little Creek
- Cottonwood Canyon Creek
- Little Pine Creek
- Calf Springs - Spring Creek
- Holt Canyon Creek
- Little Pinto Creek
    - Pinto Creek

4TH PRIORITY

Streams in South Fork of the Sevier River Basin (includes as minimum):

- Asay Creek and tributaries
- Duck Creek
- Mammoth Creek and tributaries
- Panguitch Creek and tributaries
- Threemile Creek
- Bear Valley
- Sanford Creek

5TH PRIORITY

Streams in East Fork of Sevier River Basin (includes as minimum):

- East Fork of Sevier River and upper tributaries
- Hunt Creek
- Prospect Creek
- Cottonwood Creek
- Deer Creek
- Deep Creek
- Pine Creek
- Forest Creek
- Clay Creek
- Sweetwater Creek
- Horse Creek
- Birch Creek
- North Creek
- Antimony Creek

FOREST ACTION SCHEDULE

Minerals

Project Name	Mgmt. area	District	86	87	88	89	90	91	92	93	94	95
			Fiscal Year to Implement									
Review Oil and Gas Leasing Status	All	D-1		X								
Gold Mine Project - New Harmony/Grants Ranch	1		X	X	X	X						
Inventory and Update Common Variety Management Plan	All		X	X								
Review Oil and Gas Leasing Status	All	D-2		X								
Inventory and Update Common Variety Management Plan	All		X	X				X	X			
Review Oil and Gas Leasing Status	All	D-3		X								
Reclamation - Arco's Smith Canyon Well Site and East Fork Sevier Well Site	2A/6A		X									
Inventory and Update Common Variety Mgt. Plan	All		X	X								
Review Oil and Gas Leasing Status	All	D-4		X								
Woods Knight & Fransen Coal lease Development & Production	1,2B/6A/7A							X	X	X	X	X
Mid Continent CO2 Development and Production	8A1,2/2B/6A		X	X	X	X	X	X	X	X	X	X
Rehabilitation of Upper Valley Oil Field	1B/2B		X	X	X	X	X	X	X	X	X	X
Inventory and update Common Variety Management Plan	All		X	X								
Escalante KGS Environmental Assessment (Leasing)			X									
Review Oil and Gas Leasing Status	All	D-5		X								
Gypsum Mining - Government Creek	5A		X	X	X	X	X					
Inventory and Update - Common Variety Management Plan	All		X	X								

Lands

Project Name	Mgmt. area	District	86	87	88	89	90	91	92	93	94	95
			Fiscal Year to Implement									
IPP powerline construction and followup work	1/5A/6A	D-1	X	X								
UP&L powerline construction and followup work	1/5A/6A		X	X								
UAMPS transmission line construction	1/5A/6A		X	X								
Hydropower construction proposals (3)	2B/5A/6A/4C		X	X	X							
Electronic Site Management Plan - Big Mountain	1			X								
Withdrawal Review	1A/3A/5A/2B		X									
Reappraisal of summer home fees	1A											
Kern Project Natural Gas pipeline	1A/5A/6A		X	X	X							
Williams Project, fiber optics cable	1A/5A/6A		X	X								
Crystal Mountain Recreation Area construction	1B	D-2	X	X	X	X	X					
Reappraisal of summer home fees	1A											
Electronic Site Management Plan - Blowhard	1			X								
Brianhead winter sports area expansion	1B		X	X	X	X	X	X	X	X	X	X
Withdrawal Review	1A/2A/3A/6A		X									
Electronic Site Management Plan - Wilson Peak	7A	D-3		X								
Withdrawal Review	1B/2A/2B/5A		X									
Withdrawal Review		D-4	X									
Withdrawal Review		D-5	X									

FOREST ACTION SCHEDULE

Lands

Project Name	Mgmt. area	Dis-trict	Fiscal Year to Implement									
			86	87	88	89	90	91	92	93	94	95
Withdrawl Review	1/1A/2A/2B	D-4	X	X	X							
Electronic Site Management Plan - Henderson Rim	2A/5A/6A			X								
Electronic Site Management Plan - Barney Top	7A			X								
Electroknic Site Management Plan Escalante Ridge	7A			X								
Upgrade of UP&L Sigurd - Page Powerline	5A							X	X			
CO2 Transmission line construction	2B,8A1/8A2		X	X	X	X	X					
Garkane Escalante CO2 - Antimony Powerline Construction	2B/5A/6A/7A			X	X							
Review Oil and Gas Leasing Status	All	D-3		X								
Reclamation - Arco's Smith Canyon Well Site and East Fork Sevier Well Site	2A/6A		X									
Inventory and Update Common Variety Mgt. Plan	All		X	X								
Circle Cliffs Tar Sands Oil Pipeline Construction	2B											
Garkane - Boulder Hydroplant Expansion	2B							X	X			
Withdrawal Review	1A/2A/2B/7A	D-5	X	X	X							

Facilities

Project Name	Mgmt. area	Dis-trict	Fiscal Year to Implement									
			86	87	88	89	90	91	92	93	94	95
Pine Valley Bunkhouse		D-1			X							
Duck Creek Bunkhouse		D-2						X				
Navajo Lake Road												
Mammoth Creek Road												
Little Valley Bridge			X									
Escalante Office		D-4			X							
Acquarius Teasdale Road			X									
Jacob's Valley Road				X	X							
Salt Gulch Bridge				X								
Hells Back Bone Road								X				
Teasdale Duplex		D-5							X			
Cedar City Warehouse		S.O.		X								

Protection

			Fiscal Year to Implement									
Project Name	Mgmt. Area	Dis-trict	86	87	88	89	90	91	92	93	94	95
Fire Prevention Plan	All	D-1	X	X	X	X	X	X	X	X		
Construct fuel breaks	2B		X	X	X	X	X	X	X	X		
Treatment of activity fuels	1A/3A	D-2	X	X	X	X	X	X	X	X		
Fire Management Area Plan	7A	D-3	X									
Treatment of Activity fuels	6A		X	X	X	X	X	X	X	X		
Treatment of Natural fuels	7A		X	X	X	X	X	X	X	X		
Treatment of Activity Fuels	7A	D-4	X	X	X	X	X	X	X	X		
Treatment of Natural Fuels	7A		X	X	X	X	X	X	X	X		
Fuel Management Inventory - Ponderosa, Spruce Fir, and Boulder Top	All	D-5		X	X	X						
Fire Plans - Ponderosa, Spruce Fir, and Boulder Top	All									X	X	X
Construct fuel breaks	7A											
Treatment of activity fuels	7A						X	X	X	X	-	

APPENDIX C

STANDARD AND SPECIAL STIPULATIONS
Leasing Matrix

PROCEDURE FOR LEASING

The leasing matrix is provided as a guide for the land manager for leasing recommendations. The manager would use the following procedure when a request for leasing is received:

1. Determine the location of the proposed lease from the proposed lease.

2. Check the management area map to see which management area it is located in. The management areas where restrictions apply will be designated with the "#" symbol.

3. Refer the specific management direction in Chapter IV. Some general direction may be available in the "General Direction"; however, specific standards and guidelines will be found for the specific management area.

4. The manager can then refer to the leasing matrix which gives guidelines for proper stipulations to use in the proposed lease.

5 Copies of the standard and special stipulations are included in Appendix C for reference by the land manager.

An example may be a request to lease 40 acres on Pine Valley Mountain. The Manager would check the map and find for example, the proposal is within the Municipal Watershed Area 10E. He would find a "#" symbol near the 10E. He would then know special stipulations would be needed. A review of the management direction for 10E and the leasing matrix would indicate a "no-surface-occupancy" stipulation would need to be recommended.

LEASING MATRIX

To be used as a guide by land managers for leasing recommendations to Bureau of Land Management. Actual on-the-ground conditions may require some deviation from matrix.

No.	Stipulation Summary	1 GENERAL FOREST DIRECTION	1A RECREATION SITES	1B WINTER SPORTS SITES	2A SEMI PRIMITIVE RECREATION OPP.	2B RURAL & ROADED RECREATION OPP.	4A FISH HABITAT EMPHASIS	4B WILDLIFE HABITAT MGT. (MIS.)	4C WILDLIFE HABITAT (SHRUB AREAS)	4D WILDLIFE HABITAT (SHRUB AREAS)	5A BIG GAME WINTER RANGE (NON FRST)	5B BIG GAME WINTER RANGE (FOREST)	6A LIVESTOCK GRAZING	7A TIMBER MANAGEMENT	8A WILDERNESS	8A1 ANTONE BENCH CO2 AREA	8A2 OTHER CO2 AREAS	9A RIPARIAN AREAS	9B INTENSIVE RIPARIAN MGT.	10A RESEARCH NATURAL AREAS	10B MUNICIPAL WATERSHEDS					
1.	No Surface occupancy - entire lease		X	X	X	X					X	X						X	X	X	X					
2.	Visual - road, structure etc.	X			X	X																				
3.	No occupancy - legal subdivision		X	X	X	X					X							X	X	X	X					
4.	No surface occupancy adjacent to road, river, trail, etc.		X		X	X	X				X		X					X	X							
5.	No drilling or storage near reservoirs, archaeological sites, etc.																	X								
6.	No surface occupancy - steep slopes	X	X	X	X	X			X		X		X							X	X					
7.	No surface occupancy, seasonal		X	X	X	X		X	X	X	X	X														
8.	Prohibit activity - muddy or wet periods	X			X				X		X	X	X	X												
9.	Restricted trail/road	X																								
10.	Visual - painting or camouflage					X																				
11.	No surface occupancy - (May replace #1, 3, and 6)		X	X	X						X							X	X	X	X					
12.	No drilling, storage, surface disturb next to. . .(May replace #1, 4, and 5)						X											X								
13.	No surface distrub., explor., dril. . . (May replace #7)								X		X															
14.	Controlled or limited surface use	X																								
15.	Activity Coordination	X																								
16.	Protection of T&E species	X						X	X		X	X	X	X												
17.	Stipulation from Utah Wilderness														X	X	X									
18.	No new leasing														X											

FOREST SERVICE

SPECIAL STIPULATIONS

STIPULATION FOR LANDS OF THE NATIONAL FOREST SYSTEM
UNDER JURISDICTION OF
DEPARTMENT OF AGRICULTURE

The licensee/permittee/lessee must comply with all the rules and regulations of the Secretary of Agriculture set forth at Title 36, Chapter II, of the Code of Federal Regulations governing the use and management of the national Forest System (NFS) when not inconsistent with the rights granted by the Secretary of the Interior in the license/prospecting permit/lease. The Secretary of Agriculture's rules and regulations must be complied with for (1) all use and occupancy of the NFS prior to approval of a permit/operation plan by the Secretary of the Interior, (2) uses of all existing improvements, such as Forest development roads, within and outside the area licensed, permitted or leased by the Secretary of the Interior, and (3) use and occupancy of the NFS not authorized by a permit/operating plan approved by the Secretary of the Interior.

All matters related to this stipulation are to be addressed

to

at

Telephone No.:

who is the authorized representative of the Secretary of Agriculture.

Signature of Licensee/Permittee/Lessee

SPECIAL STIPULATIONS - OIL AND GAS

The following special stipulations may be used in addition to the terms on the lease form, and are necessary to protect specific resource values on the lease area. If found to be in the public interest, these stipulations may be made less restrictive when specifically approved in writing by the authorized officer, Bureau of Land Management, with the concurrence of the Federal surface management agency.

1. All of the land in this lease is included in (recreation or special area, etc.). Therefore, no occupancy or disturbance of the surface of the land described in this lease is authorized. The lessee, however, may exploit the oil and gas resources in this lease by directional drilling from sites outside this lease. If a proposed drilling site lies on land administered by the Bureau of Land Management, or by the Forest Service, a permit for use of the site must be obtained from the BLM District Manager or the Forest Service District Ranger, before drilling or other development begins.

2. No access or work trail or road, earth cut or fill, structure or other improvement, other than an active drilling rig, will be permitted if it can be viewed from the (road, lake, river, etc.).

3. No occupancy or other activity on the surface of (legal subdivision) is allowed under this lease.

4. No occupancy or other surface disturbance will be allowed within feet of the ________ (road, trail, river, creek, canal, etc.). This distance may be modified when specifically approved in writing by the authorized officer, Bureau of Land Management, with the concurrence of the Federal surface management agency.

5. No drilling or storage facilities will be allowed within ________ feet of (live water, the reservoir, the archaeological site, the historical site, the paleontolotical site, etc.) located in (legal subdivision). This distance may be modified when specifically approved in writing by the authorized officer, Bureau of Land Management, with the concurrence of the Federal surface management agency.

6. No occupancy or other surface disturbance will be allowed on slopes in excess of _____ percent, without written permission from the authorized officer, Bureau of Land Management, with the concurrence of the Federal surface management agency.

7. In order to (minimize watershed damage, protect important seasonal wildlife habitat, etc.) exploration, drilling, and other development activity will be allowed only (during the period from ________ to ________, during dry soil period,over a snow cover, on frozen gound). This limitation does not apply to maintenance and operation of producing wells, Exceptions to this limitation in any year may be specifically authorized in writing by the authorized officer, Bureau of Land Management with the concurrence of the Federal surface managment agency.

8. In order to minimize watershed damage, during muddy and/or wet periods, the authorized officer of the Federal surface management agency, through the

authorized officer, of the Bureau of Land Mangement, may prohibit exploration, drilling, or other development. This limitation does not apply to maintenance and operation of producing wells.

9. The __________ (Trail/Road) will not be used as an access road for activities on this lease, except as follows: (No exceptions, weekdays during recreation season, etc.).

10. To maintain esthetic values, all semi-permanent and permanent facilities may require painting or camouflage to blend with the natural surroundings. The paint selection or method of camouflage will be subject to approval by the authorized officer of the Bureau of Land Management, with the concurrence of the Federal surface management agency.

11. No occupancy or other activity on the surface of the following described lands is allowed under this lease:

Reasons for this restriction are:

Examples of appropriate reasons for this restriction are:

1. Steep slopes.
2. Specific ecosystem, ecological land unit, land type or geologic formation which presents hazards such as mass failure.
3. Special management units such as: Recreation Type I, water supply, administrative site, etc.

( ) Approximately ____% of lease.

Note: This stipulation could be used in place of stipulations Nos. 1, 3, and 6.

12. No __________ will be allowed within ________ feet of the ___________. This area contains __________ acres and is described as follows:

Reasons:

First blank to be filled in with one or more of the following: drilling, storage, facilities, surface disturbance, or occupancy. Second and third blanks to be filled in with one or more of the following:

1. ____ feet wildlife habitat essential to specific species.
2. ____ feet peripheral or unique vegetative type.
3. 200 feet either side of centerline of roads or highways.
4. 500 feet of normal high waterline on all streams, rivers, ponds, reservoirs, lakes.
5. 600 feet of all springs.
6. 400 feet of any improvements.

Note: Stipulation No. 12 could be used in place of stipulations Nos. 4 and 5.

13. In order to (minimize) (protect) ______________________________________, ______________________________________ will be allowed only during ______________________________________. This does not apply to maintenance and operation of producing wells and facilities. Lands within leased area to which this stipulation applies are described as follows:

Reason:

First blank to be filled in with one or more of the following:

1. Watershed damage.
2. Soil erosion.
3. Seasonal wildlife habitat (winter range, calving/lambing area, etc.).
4. Conflict with recreation.

Second blank to be filled in with one or more of the following:

1. Surface disturbing activities.
2. Exploration
3. Drilling.
4. Development.

Third blank to be filled in with one or more of the following:

1. Period from __________ to __________.
2. Dry soil periods.
3. Over the snow.
4. Frozen gound.

Note: Stipulation No. 13 could be used in place of stipulation No. 7, giving greater definition as to restriction.

14. Controlled or Limited Surface Use Stipulation. This stipulation may be modified when specifically approved in writing by the authorized officer, Bureau of Land Management, with concurrence of the Federal surface management agency. Distances and/or time periods may be made less restrictive depending on the actual onground conditions.

The lessee/operator is given notice that all or portions of the lease area may contain special values, may be needed for special purposes, or may require special attention to prevent damage to surface and/or other resources. Any surface use or occupancy within such special areas will be strictly controlled. Use or occupancy will be authorized only when the lessee/operator demonstrates that the special area is essential for operations in accordance with a surface use and operations plan which is satisfactory to the BLM and Federal surface management agency for the protection of such special areas and existing or planned uses. Appropriate modifications to imposed restrictions will be made for the maintenance and operation of producing oil and gas wells; however,in extremely critical situations, occupancy may only be allowed in emergencies.

After the Federal surface management agency has been advised of specific proposed surface use or occupancy on these lands, and on request of the lessee/operator, the agency will furnish more specific locations and additional information on such special areas which now include:

Description: (Legal land description to lot and/or quarter, quarter section.)

Reason for Restriction:

Duration of Restriction: (year-round, month(s))

15. Activity Coordination Stipulation. This lease includes lands within * _______________ which has resource values sensitive to high levels of activity. In order to minimize impacts to these resources, special conditions, such as unitization prior to approval of operations, and/or other limitations to spread surface disturbance activities over time and space may be required prior to approval and commencement of any operations on the lease.

Visually sensitive areas, Areas of Threatened and Endangered Species.

16. Protection of Endangered or Threatened Species. The Federal surface management agency is responsible for assuring that the area to be disturbed is examined, prior to undertaking any surface-disturbing activities on lands covered by this lease, to determine effects upon any plant or animal species listed or proposed for listing as endangered or threatened, or their habitats. If the findings of this examination determine that the operation may detrimentally affect an endangered or threatened species, some restrictions to the operator's plans or even disallowances of use may result.

The lessee/operator may, at his descretion and cost, conduct the examination on the lands to be disturbed. This examination must be done by or under the supervision of a qualified resource specialist approved by the surface management agency. An acceptable report must be provided to the surface management agency identifying the anticipated effects or the proposed action on endangered or threatened species or their habitat.

SPECIAL STIPULATIONS - COAL

Special stipulations made part of this lease may be waived or amended with the mutual consent of the lessor, lessee, and the surface management agency.

In accordance with Sec. 523(b) of the "Surface Mining Control and Reclamation Act of 1977', surface mining and reclamation operations conducted on this lease are to conform with the requirements of this act and are subject to compliance with Office of Surface Mining regulations, or as applicable, a Utah program equivalent approved under cooperative agreement in accordance with Sec. 523(c) and final determination of suitability for mining. The United States Government does not warrant that the entire tract will be susceptible to mining.

The Authorized Officers, of the Bureau of Land Management, Office of Surface Mining (Regulatory Authority), and the Surface Management Agency (Forest Service) respectively, shall coordinate, as practical, regulation of mining operations and associated activities on the lease area.

Federal Regulations 43 CFR 3400 pertaining to Coal Management make provisions for the Surface Management Agency, the surface of which is under the jurisdiction of any federal agency other than the Department of Interior, to consent to leasing and to prescribe conditions to insure the use and protection of the lands. All or part of this lease contain lands the surface of which are managed by the United States Department of Agriculture, Forest Service. The following stipulations pertain to the lessee's responsibility for mining operations on the lease area, and on adjacent areas specifically designated on National Forest Service Lands.

Forest Service Stipulation No. 1

Before undertaking activities that may disturb the surface of previously undisturbed leased lands, the Lessee may be required to conduct a cultural resource inventory and a paleontological appraisal of the areas to be disturbed. These studies shall be conducted by qualified professional cultural resource specialists or recognized qualified paleontologists, as appropriate, and a report prepared itemizing the findings, A plan will then be submitted making recommendations for the protection of, or measures to be taken to mitigate impacts for identified cultural or paleontological resources. If cultural resources or paleontological remains (fossils) of significant scientific interest are discovered during operations under this lease, the Lessee shall immediately bring them to the attention of the appropriate authority. Paleontological remains of significant scientific interest do not include leaves, ferns, or dinosaur tracks commonly encountered during underground mining operations.

The cost of conducting the inventory, preparing reports, and carrying out mitigating measures shall be borne by the Lessee.

READEX FICHE

Forest Service Stipulation No. 2

If there is reason to believe that threatened or endangered (T&E) species of plants or animals, or migratory species of high Federal interest occur in the area, the Lessee shall be required to conduct an intensive field inventory of the area to be disturbed and/or impacted. The inventory shall be conducted by a qualified specialist and a report of findings will be prepared. A plan will be prepared making recommendations for the protection of these species or action necessary to mitigate the disturbance.

The cost of conducting the inventory, preparing reports, and carrying out mitigating measures shall be borne by the Lessee.

Forest Service Stipulation No. 3

The Lessee shall be required to perform a study to secure adequate baseline data to quantify the existing surface resources on and adjacent to lease area. Existing data may be used if such data is adequate for the intended purposes. The study shall be adequate to locate, quantify, and demonstrate the inter-relationship of the geology, topography, surface hydrology, vegetation, and wildlife. Baseline data will be established so that future programs of observation can be incorporated at regular intervals for comparison.

Forest Service Stipulation No. 4

Powerlines used in conjunction with the mining of coal from this lease shall be constructed so as to provide adequate protection for raptors and other large birds. When feasible, powerlines will be located at least 100 yards from public roads.

Forest Service Stipulation No. 5

The limited area available for mine facilities at the coal outcrop, steep topography, adverse winter weather, and physical limitations on the size and design of the access road, are factors which will determine the ultimate size of the surface area utilized for the mine. A site specific environmental analysis will be prepared for each new mine site development and for major improvements to existing developments to examine alternatives and mitigate conflicts.

Forest Service Stipulation No. 6

All operations will be conducted to protect the aesthetic and scenic values. Consideration will be given to site selection to reduce adverse visual impacts. Where alternative sites are available, the alternative involving the least damage to the scenery and other resources shall be selected if it is comparable from a technical standpoint with the proposed development site. Permanent structures and facilities will be designed to be architectually compatible and harmonize with the surrounding landscape where possible.

Screening techniques will be employed to reduce scenic impacts, and achieve a final landscape compatible with the natural surroundings. Construction practices requiring the alteration or modification of the existing topography will be compatible with and graded into the adjoining land form. The creation of unusual, objectionable, or unnatural land forms and vegetative landscape features will be avoided.

Forest Service Stipulation No. 7

The Lessee shall be required to establish a monitoring system to locate, measure, and quantify the progressive and final effects of underground mining activities on the topographic surface, underground and surface hydrology and vegetation. The monitoring system shall utilize techniques which will provide a continuing record of change over time and an analytical method for location and measurement of a number of points over the lease area. The monitoring shall incorporate and be an extension of the baseline data.

Forest Service Stipulation No. 8

The Lessee shall provide for the suppression and control of fugitive dust on haul roads and at coal handling and storage facilities. On Forest Development Roads (FDR), Lessee may perform their share of road maintenance by a commensurate share agreement if a significant degree of traffic is generated that is not related to their activities.

Forest Service Stipulation No. 9

Except at specifically approved locations, underground mining operations shall be conducted in such a manner so as to prevent surface subsidence that would: (1) cause the creation of hazardous conditions such as potential escarpment failure and landslides, (2) cause damage to existing surface structures, and (3) damage or alter the flow of perennial streams. The Lessee shall provide specific measures for the protection of escarpments, and determine corrective measures to assure that hazardous conditions are not created.

Forest Service Stipulation No. 10

In order to avoid surface disturbance on steep canyon slopes and to satisfy the need for surface access, all surface breakouts for ventilation tunnels shall be constructed from inside the mine, except at specific approved locations.

Forest Service Stipulation No. 11

If removal of timber is required for clearing of construction sites, etc., such timber shall be removed in accordance with Forest Service regulations.

Forest Service Stipulation No. 12

The coal contained within, and authorized for mining under this lease shall be extracted only by underground mining methods.

Forest Service Stipulation No. 13

Existing Forest Service owned or permitted surface improvements will need to be protected, restored, or replaced to provide for the continuance of current land uses.

Forest Service Stipulation No.14

In order to protect wintering big game, calving elk and deer fawning areas, sagegrouse strutting areas, and other critical wildlife activities, specific surface uses outside the mine development area may be curtailed during specified periods of the year.

Forest Service Stipulation No. 15

Support facilities, structures, equipment, and similar developments will be removed from the lease area within two years after the final termination of use of such facilities. Disturbed areas and those areas occupied by such facilities will be stabilized and rehabilitated, drainages re-established, and the areas returned to a premining land use.

Forest Service Stipulation No. 16

The Lessee, at the conclusion of the mining operation, or at other times as surface disturbance related to mining may occur, will replace all damaged disturbed or displaced land monuments (section corners, 1/4 corners, etc.) Their accessories and appendages (witness trees, bearing trees, etc.) or restore them to their original condition and location, or at other locations that meet the requirements of the land net. This work shall be conducted at the expense of the Lessee, by a professional land surveyor registered in the State of Utah, and to the standards and guidelines found in the Manual of Surveying Instructions, United States Department of the Interior.

Forest Service Stipulation No. 17

The Lessee at his expense will be responsible to replace any surface water identified for protection, that may be lost or adversely affected by mining operations, with water from an alternate source in sufficient quantity and quality to maintain existing riparian habitat, fishery habitat, livestock and wildlife use, or other land uses.

STANDARD BLM
MINERAL LEASE
FORMS

rm 3100-11*
(March 1984)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0008
Expires January 31, 1986

Serial No.

OFFER TO LEASE AND LEASE FOR OIL AND GAS

The undersigned (reverse) offers to lease all or any of the lands in item 2 that are available for lease pursuant to the Mineral Leasing Act of 1920 (30 U.S.C. 181 et seq), the Mineral Leasing Act for Acquired Lands (30 U.S.C. 351-359), the Attorney General's Opinion of April 2, 1941 (40 OP. Atty. Gen. 41), or the

Read Instructions Before Completing

1. Name

Street

City, State, Zip Code

---

2. This offer/lease is for: (Check Only One) ☐ PUBLIC DOMAIN LANDS ☐ ACQUIRED LANDS (percent U.S. interest ______________)

Surface managing agency if other than BLM: ______________________________ Unit/Project ______________________________

Legal description of land requested:

T.	R.	Meridian	State	County

Total acres applied for ______________

Amount remitted: Filing fee $ ______________ Rental fee $ ______________ Total $ ______________

DO NOT WRITE BELOW THIS LINE

3. Land included in lease:

T.	R.	Meridian	State	County

Total acres in lease ______________

Rental retained $ ______________

In accordance with the above offer, or the previously submitted simultaneous oil and gas lease application or competitive bid, this lease is issued granting the exclusive right to drill for, mine, extract, remove and dispose of all the oil and gas (except helium) in the lands described in item 3 together with the right to build and maintain necessary improvements thereupon for the term indicated below, subject to renewal or extension in accordance with the appropriate leasing authority. Rights granted are subject to applicable laws, the terms, conditions, and attached stipulations of this lease, the Secretary of the Interior's regulations and formal orders in effect as of lease issuance, and to regulations and formal orders hereafter promulgated when not inconsistent with lease rights granted or specific provisions of this lease.

Type and primary term of lease:

☐ Simultaneous noncompetitive lease (ten years)

☐ Regular noncompetitive lease (ten years)

☐ Competitive lease (five years)

☐ Other ______________________________

THE UNITED STATES OF AMERICA

by ______________________________
(Signing Officer)

______________________________ (Title) ______________ (Date)

EFFECTIVE DATE OF LEASE ______________________________

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*(Formerly 3110-1, 2, 3, 3120-1, 7, 3130-4, 5, and 7)

4. (a) Undersigned certifies that (1) offeror is a citizen of the United States; an association of such citizens; a municipality; or a corporation organized under the laws of the United States or of any State or Territory thereof, (2) all parties holding an interest in the offer are in compliance with 43 CFR 3100 and the leasing authorities; (3) offeror's chargeable interests, direct and indirect, in either public domain or acquired lands do not exceed 200,000 acres in oil and gas options or 246,080 acres in options and leases in the same State, or 300,000 acres in leases and 200,000 acres in options in either leasing District in Alaska, and (4) offeror is not considered a minor under the laws of the State in which the lands covered by this offer are located.

(b) Undersigned agrees that signature to this offer constitutes acceptance of this lease, including all terms, conditions, and stipulations of which offeror has been given notice, and any amendment or separate lease that may include any land described in this offer open to leasing at the time this offer was filed but omitted for any reason from this lease. The offeror further agrees that this offer cannot be withdrawn, either in whole or part, unless the withdrawal is received by the BLM State Office before this lease, an amendment to this lease, or a separate lease, whichever covers the land described in the withdrawal, has been signed on behalf of the United States.

This offer will be rejected and will afford offeror no priority if it is not properly completed and executed in accordance with the regulations, or if it is not accompanied by the required payments. 18 U.S.C. Sec. 1001 makes it a crime for any person knowingly and willfully to make to any Department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Duly executed this ________ day of ______________________________, 19 ______.

____
(Signature of Lessee or Attorney-in-fact)

LEASE TERMS

Sec. 1. Rentals—Rentals shall be paid to proper office of lessor in advance of each lease year. Annual rental rates per acre or fraction thereof are:

(a) Simultaneous noncompetitive lease, $1.00 for the first 5 years, thereafter, $3.00;
(b) Regular noncompetitive lease, $1.00;
(c) Competitive lease, $2.00; or
(d) Other, see attachment.

If all or part of a noncompetitive leasehold is determined to be within a known geological structure or a favorable petroleum geological province, annual rental shall become $2.00, beginning with the lease year following notice of such determination. However, a lease that would otherwise be subject to rental of more than $2.00 shall continue to be subject to the higher rental.

If this lease or a portion thereof is committed to an approved cooperative or unit plan which includes a well capable of producing leased resources, and the plan contains a provision for allocation of production, royalties shall be paid on the production allocated to this lease. However, annual rentals shall continue to be due at the rate specified in (a), (b), (c), or (d) for those lands not within a participating area.

Failure to pay annual rental, if due, on or before the anniversary date of this lease (or next official working day if office is closed) shall automatically terminate this lease by operation of law. Rentals may be waived, reduced, or suspended by the Secretary upon a sufficient showing by lessee.

Sec. 2. Royalties—Royalties shall be paid to proper office of lessor. Royalties shall be computed in accordance with regulations on production removed or sold. Royalty rates are:

(a) Simultaneous noncompetitive lease, 12½%;
(b) Regular noncompetitive lease, 12½%;
(c) Competitive lease, see attachment; or
(d) Other, see attachment.

Lessor reserves the right to specify whether royalty is to be paid in value or in kind, and the right to establish reasonable minimum values on products after giving lessee notice and an opportunity to be heard. When paid in value, royalties shall be due and payable on the last day of the month following the month in which production occurred. When paid in kind, production shall be delivered, unless otherwise agreed to by lessor, in merchantable condition on the premises where produced without cost to lessor. Lessee shall not be required to hold such production in storage beyond the last day of the month following the month in which production occurred, nor shall lessee be held liable for loss or destruction of royalty oil or other products in storage from causes beyond the reasonable control of lessee.

Minimum royalty shall be due for any lease year after discovery in which royalty payments aggregate less than $1.00 per acre. Lessee shall pay such difference at end of lease year. This minimum royalty may be waived, suspended, or reduced, and the above royalty rates may be reduced, for all or portions of this lease if the Secretary determines that such action is necessary to encourage the greatest ultimate recovery of the leased resources, or is otherwise justified.

An interest charge shall be assessed on late royalty payments or underpayments in accordance with the Federal Oil and Gas Royalty Management Act of 1982 (FOGRMA) (96 Stat. 2447). Lessee shall be liable for royalty payments on oil and gas lost or wasted from a lease site when such loss or waste is due to negligence on the part of the operator, or due to the failure to comply with any rule, regulation, order, or citation issued under FOGRMA or the leasing authority.

Sec. 3. Bonds—Lessee shall file and maintain any bond required under regulations.

Sec. 4. Diligence, rate of development, unitization, and drainage—Lessee shall exercise reasonable diligence in developing and producing, and shall prevent unnecessary damage to, loss of, or waste of leased resources. Lessor reserves right to specify rates of development and production in the public interest and to require lessee to subscribe to a cooperative or unit plan, within 30 days of notice, if deemed necessary for proper development and operation of area, field, or pool embracing these leased lands. Lessee shall drill and produce wells necessary to protect leased lands from drainage or pay compensatory royalty for drainage in amount determined by lessor.

Sec. 5. Documents, evidence, and inspection—Lessee shall file with proper office of lessor, not later than 30 days after effective date thereof, any contract or evidence of other arrangement for sale or disposal of production. At such times and in such form as lessor may prescribe, lessee shall furnish detailed statements showing amounts and quality of all products removed and sold, proceeds therefrom, and amount used for production purposes or unavoidably lost. Lessee may be required to provide plats and schematic diagrams showing development work and improvements, and reports with respect to parties in interest, expenditures, and depreciation costs. In the form prescribed by lessor, lessee shall keep a daily drilling record, a log, information on well surveys and tests, and a record of subsurface investigations and furnish copies to lessor when required. Lessee shall keep open at all reasonable times for inspection by any authorized officer of lessor, the leased premises and all wells, improvements, machinery, and fixtures thereon, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or in the leased lands. Lessee shall maintain copies of all contracts, sales agreements, accounting records, and documentation such as billings, invoices, or similar documentation that supports costs claimed as manufacturing, preparation, and/or transportation costs. All such records shall be maintained in lessee's accounting offices for future audit by lessor. Lessee shall maintain required records for 6 years after they are generated or, if an audit or investigation is underway, until released of the obligation to maintain such records by lessor.

During existence of this lease, information obtained under this section shall be closed to inspection by the public in accordance with the Freedom of Information Act (5 U.S.C. 552).

Sec. 6. Conduct of operations—Lessee shall conduct operations in a manner that minimizes adverse impacts to the land, air, and water, to cultural, biological, visual, and other resources, and to other land uses or users. Lessee shall take reasonable measures deemed necessary by lessor to accomplish the intent of this section. To the extent consistent with lease rights granted, such measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures. Lessor reserves the right to continue existing uses and to authorize future uses upon or in the leased lands, including the approval of easements or rights-of-ways. Such uses shall be conditioned so as to prevent unnecessary or unreasonable interference with rights of lessee.

Prior to disturbing the surface of the leased lands, lessee shall contact lessor to be apprised of procedures to be followed and modifications or reclamation measures that may be necessary. Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources. Lessee may be required to complete minor inventories or short term special studies under guidelines provided by lessor. If in the conduct of operations, threatened or endangered species, objects of historic or scientific interest, or substantial unanticipated environmental effects are observed, lessee shall immediately contact lessor. Lessee shall cease any operations that would result in the destruction of such species or objects.

Sec. 7. Mining operations—To the extent that impacts from mining operations would be substantially different or greater than those associated with normal drilling operations, lessor reserves the right to deny approval of such operations.

Sec. 8. Extraction of helium—Lessor reserves the option of extracting or having extracted helium from gas production in a manner specified and by means provided by lessor at no expense or loss to lessee or owner of the gas. Lessee shall include in any contract or sale of gas the provisions of this section.

Sec. 9. Damages to property—Lessee shall pay lessor for damage to lessor's improvements, and shall save and hold lessor harmless from all claims for damage or harm to persons or property as a result of lease operations.

Sec. 10. Protection of diverse interests and equal opportunity—Lessee shall: pay when due all taxes legally assessed and levied under laws of the State or the United States; accord all employees complete freedom of purchase; pay all wages at least twice each month in lawful money of the United States; maintain a safe working environment in accordance with standard industry practices; and take measures necessary to protect the health and safety of the public.

Lessor reserves the right to ensure that production is sold at reasonable prices and to prevent monopoly. If lessee operates a pipeline, or owns controlling interest in a pipeline or a company operating a pipeline, which may be operated accessible to oil derived from these leased lands, lessee shall comply with section 28 of the Mineral Leasing Act of 1920.

Lessee shall comply with Executive Order No. 11246 of September 24, 1965, as amended, and regulations and relevant orders of the Secretary of Labor issued pursuant thereto. Neither lessee nor lessee's subcontractors shall maintain segregated facilities.

Sec. 11. Transfer of lease interests and relinquishment of lease—As required by regulations, lessee shall file with lessor any assignment or other transfer of an interest in this lease. Lessee may relinquish this lease or any legal subdivision by filing in the proper office a written relinquishment, which shall be effective as of the date of filing, subject to the continued obligation of the lessee and surety to pay all accrued rentals and royalties.

Sec. 12. Delivery of premises—At such time as all or portions of this lease are returned to lessor, lessee shall place affected wells in condition for suspension or abandonment, reclaim the land as specified by lessor and, within a reasonable period of time, remove equipment and improvements not deemed necessary by lessor for preservation of producible wells.

Sec. 13. Proceedings in case of default—If lessee fails to comply with any provisions of this lease, and the noncompliance continues for 30 days after written notice thereof, this lease shall be subject to cancellation. Lessee shall also be subject to applicable provisions and penalties of FOGRMA (96 Stat. 2447). However, if this lease includes land known to contain valuable deposits of leased resources, it may be cancelled only by judicial proceedings. This provision shall not be construed to prevent the exercise by lessor of any other legal and equitable remedy, including waiver of the default. Any such remedy or waiver shall not prevent later cancellation for the same default occurring at any other time.

Sec. 14. Heirs and successors-in-interest—Each obligation of this lease shall extend to and be binding upon, and every benefit hereof shall inure to the heirs, executors, administrators, successors, beneficiaries, or assignees of the respective parties hereto.

Form 3400-12
(April 1984)
(Formerly 3520-1)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

COAL LEASE

Serial Number

PART I. LEASE RIGHTS GRANTED

This lease, entered into by and between the UNITED STATES OF AMERICA, hereinafter called lessor, through the Bureau of Land Management, and *(Name and Address)*

hereinafter called lessee, is effective *(date)* , for a period of 20 years and for so long thereafter as coal is produced in commercial quantities from the leased lands, subject to readjustment of lease terms at the end of the 20th lease year and each 10-year period thereafter.

Sec. 1. This lease is issued pursuant and subject to the terms and provisions of the:

☐ Mineral Lands Leasing Act of 1920, Act of February 25, 1920, as amended, 41 Stat. 437, 30 U.S.C. 181-287, hereinafter referred to as the Act;

☐ Mineral Leasing Act for Acquired Lands, Act of August 7, 1947, 61 Stat. 913, 30 U.S.C. 351-359;

and to the regulations and formal orders of the Secretary of the Interior which are now or hereafter in force, when not inconsistent with the express and specific provisions herein.

Sec. 2. Lessor, in consideration of any bonuses, rents, and royalties to be paid, and the conditions and covenants to be observed as herein set forth, hereby grants and leases to lessee the exclusive right and privilege to drill for, mine, extract, remove, or otherwise process and dispose of the coal deposits in, upon, or under the following described lands:

containing acres, more or less, together with the right to construct such works, buildings, plants, structures, equipment and appliances and the right to use such on-lease rights-of-way which may be necessary and convenient in the exercise of the rights and privileges granted, subject to the conditions herein provided.

PART II. TERMS AND CONDITIONS

Sec. 1. (a) RENTAL RATE - Lessee shall pay lessor rental annually and in advance for each acre or fraction thereof during the continuance of the lease at the rate of $ for each lease year.

(b) RENTAL CREDITS - Rental shall not be credited against either production or advance royalties for any year.

Sec. 2. (a) PRODUCTION ROYALTIES - The royalty shall be percent of the value of the coal as set forth in the regulations. Royalties are due to lessor the final day of the month succeeding the calendar month in which the royalty obligation accrues.

(b) ADVANCE ROYALTIES - Upon request by the lessee, the authorized officer may accept, for a total of not more than 10 years, the payment of advance royalties in lieu of continued operation, consistent with the regulations. The advance royalty shall be based on a percent of the value of a minimum number of tons determined in the manner established by the advance royalty regulations in effect at the time the lessee requests approval to pay advance royalties in lieu of continued operation.

Sec. 3. BONDS - Lessee shall maintain in the proper office a lease bond in the amount of $. The authorized officer may require an increase in this amount when additional coverage is determined appropriate.

Sec. 4. DILIGENCE - This lease is subject to the conditions of diligent development and continued operation, except that these conditions are excused when operations under the lease are interrupted by strikes, the elements, or casualties not attributable to the lessee. The lessor, in the public interest, may suspend the condition of continued operation upon payment of advance royalties in accordance with the regulations in existence at the time of the suspension. Lessee's failure to produce coal in commercial quantities at the end of 10 years shall terminate the lease. Lessee shall submit an operation and reclamation plan pursuant to Section 7 of the Act not later than 3 years after lease issuance.

The lessor reserves the power to assent to or order the suspension of the terms and conditions of this lease in accordance with, inter alia, Section 39 of the Mineral Leasing Act, 30 U.S.C. 209.

Sec. 5. LOGICAL MINING UNIT (LMU) - Either upon approval by the lessor of the lessee's application or at the direction of the lessor, this lease shall become an LMU or part of an LMU, subject to the provisions set forth in the regulations.

The stipulations established in an LMU approval in effect at the time of LMU approval will supersede the relevant inconsistent terms of this lease so long as the lease remains committed to the LMU. If the LMU of which this lease is a part is dissolved, the lease shall then be subject to the lease terms which would have been applied if the lease had not been included in an LMU.

Sec. 6. DOCUMENTS, EVIDENCE AND INSPECTION - At such times and in such form as lessor may prescribe, lessee shall furnish detailed statements showing the amounts and quality of all products removed and sold from the lease, the proceeds therefrom, and the amount used for production purposes or unavoidably lost.

Lessee shall keep open at all reasonable times for the inspection of any duly authorized officer of lessor, the leased premises and all surface and underground improvements, works, machinery, ore stockpiles, equipment, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or under the leased lands.

Lessee shall allow lessor access to and copying of documents reasonably necessary to verify lessee compliance with terms and conditions of the lease.

While this lease remains in effect, information obtained under this section shall be closed to inspection by the public in accordance with the Freedom of Information Act (5 U.S.C. 552).

Sec. 7. DAMAGES TO PROPERTY AND CONDUCT OF OPERATIONS - Lessee shall comply at its own expense with all reasonable orders of the Secretary, respecting diligent operations, prevention of waste, and protection of other resources.

Lessee shall not conduct exploration operations, other than casual use, without an approved exploration plan. All exploration plans prior to the commencement of mining operations within an approved mining permit area shall be submitted to the authorized officer.

Lessee shall carry on all operations in accordance with approved methods and practices as provided in the operating regulations, having due regard for the prevention of injury to life, health, or property, and prevention of waste, damage or degradation to any land, air, water, cultural, biological, visual, and other resources, including mineral deposits and formations of mineral deposits not leased hereunder, and to other land uses or users. Lessee shall take measures deemed necessary by lessor to accomplish the intent of this lease term. Such measures may include, but are not limited to, modification to proposed siting or design of facilities, timing of operations, and specification of interim and final reclamation procedures. Lessor reserves to itself the right to lease, sell, or otherwise dispose of the surface or other mineral deposits in the lands and the right to continue existing uses and to authorize future uses upon or in the leased lands, including issuing leases for mineral deposits not covered hereunder and approving easements or rights-of-way. Lessor shall condition such uses to prevent unnecessary or unreasonable interference with rights of lessee as may be consistent with concepts of multiple use and multiple mineral development.

Sec. 8. PROTECTION OF DIVERSE INTERESTS, AND EQUAL OPPORTUNITY - Lessee shall: pay when due all taxes legally assessed and levied under the laws of the State or the United States; accord all employees complete freedom of purchase; pay all wages at lease twice each month in lawful money of the United States; maintain a safe working environment in accordance with standard industry practices; restrict the workday to not more than 8 hours in any one day for underground workers, except in emergencies; and take measures necessary to protect the health and safety of the public. No person under the age of 16 years shall be employed in any mine below the surface. To the extent that laws of the State in which the lands are situated are more restrictive than the provisions in this paragraph, then the State laws apply.

Lessee will comply with all provisions of Executive Order No. 11246 of September 24, 1965, as amended, and the rules, regulations, and relevant orders of the Secretary of Labor. Neither lessee nor lessee's subcontractors shall maintain segregated facilities.

Sec. 9. (a) TRANSFERS

☐ This lease may be transferred in whole or in part to any person, association or corporation qualified to hold such lease interest.

☐ This lease may be transferred in whole or in part to another public body or to a person who will mine the coal on behalf of, and for the use of, the public body or to a person who for the limited purpose of creating a security interest in favor of a lender agrees to be obligated to mine the coal on behalf of the public body.,

☐ This lease may only be transferred in whole or in part to another small business qualified under 13 CFR 121.

Transfers of record title, working or royalty interest *must* be approved in accordance with the regulations.

(b) RELINQUISHMENT - The lessee may relinquish in writing at any time all rights under this lease or any portion thereof as provided in the regulations. Upon lessor's acceptance of the relinquishment, lessee shall be relieved of all future obligations under the lease or the relinquished portion thereof, whichever is applicable.

Sec. 10. DELIVERY OF PREMISES, REMOVAL OF MACHINERY, EQUIPMENT, ETC. - At such time as all portions of this lease are returned to lessor, lessee shall deliver up to lessor the land leased, underground timbering, and such other supports and structures necessary for the preservation of the mine workings on the leased premises or deposits and place all workings in condition for suspension or abandonment. Within 180 days thereof, lessee shall remove from the premises all other structures, machinery, equipment, tools, and materials that it elects to or as required by the authorized officer. Any such structures, machinery, equipment, tools, and materials remaining on the leased lands beyond 180 days, or approved extension thereof, shall become the property of the lessor, but lessee shall either remove any or all such property or shall continue to be liable for the cost of removal and disposal in the amount actually incurred by the lessor. If the surface is owned by third parties, lessor shall waive the requirement for removal, provided the third parties do not object to such waiver. Lessee shall, prior to the termination of bond liability or at any other time when required and in accordance with all applicable laws and regulations, reclaim all lands the surface of which has been disturbed, dispose of all debris or solid waste, repair the offsite and onsite damage caused by lessee's activity or activities incidental thereto, and reclaim access roads or trails.

Sec. 11. PROCEEDINGS IN CASE OF DEFAULT - If lessee fails to comply with applicable laws, existing regulations, or the terms, conditions and stipulations of this lease, and the noncompliance continues for 30 days after written notice thereof, this lease shall be subject to cancellation by the lessor only by judicial proceedings. This provision shall not be construed to prevent the exercise by lessor of any other legal and equitable remedy, including waiver of the default. Any such remedy or waiver shall not prevent later cancellation for the same default occurring at any other time.

Sec. 12. HEIRS AND SUCCESSORS-IN-INTEREST - Each obligation of this lease shall extend to and be binding upon, and every benefit hereof shall inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto.

Sec. 13. INDEMNIFICATION - Lessee shall indemnify and hold harmless the United States from any and all claims arising out of the lessee's activities and operations under this lease.

Sec. 14. SPECIAL STATUTES - This lease is subject to the Federal Water Pollution Control Act (33 U.S.C. 1151—1175), the Clean Air Act (42 U.S.C. 1857 et. seq.), and to all other applicable laws pertaining to exploration activities, mining operations and reclamation, including the Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1201 et. seq.).

Sec. 15. SPECIAL STIPULATIONS -

Form 3200-24
(May 1984)
(formerly 3200-8)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OBM NO. 1004-0038
Expires January 31, 1986

OFFER TO LEASE AND LEASE FOR GEOTHERMAL RESOURCES

Serial No.

The undersigned (see reverse) offers to lease all or any of the lands in item 2 that are available for lease pursuant to the Geothermal Steam Act of 1970 (30 U.S.C. 1001-1025)

Read Instructions Before Completing

1. Name

Street

City, State, Zip Code

---

2. Surface managing agency if other than BLM: ______________________ Unit/Project ______________________

Legal description of land requested (segregate by public domain and acquired lands):

T.	R.	Meridian	State	County

Total acres applied for ____________

Percent U.S. interest ____________

Amount remitted: Filing fee $ ____________ Rental fee $ ____________ Total $ ____________

DO NOT WRITE BELOW THIS LINE

3. Land included in lease:

T.	R.	Meridian	State	County

Total acres in lease ____________

Rental retained $ ____________

In accordance with the above offer, or the previously submitted competitive bid, this lease is issued granting the exclusive right to drill for, extract, produce, remove, utilize, sell, and dispose of all the geothermal resources in the lands described in item 3 together with the right to build and maintain necessary improvements thereupon, for a primary term of 10 years. Rights granted are subject to applicable laws, the terms, conditions, and attached stipulations of this lease, the Secretary of the Interior's regulations and formal orders in effect as of lease issuance and, when not inconsistent with lease rights granted or specific provisions of this lease, regulations and formal orders hereafter promulgated.

THE UNITED STATES OF AMERICA

Type of lease:

☐ Noncompetitive

☐ Competitive

☐ Other ______________________

by ______________________ (Signing Officer)

______________________ (Title) ____________ (Date)

EFFECTIVE DATE OF LEASE ______________________

* U.S. GOVERNMENT PRINTING OFFICE:1986-676-140 / 40003

4 (a) Undersigned certifies that

(1) Offeror is a citizen of the United States, an association of such citizens, a municipality, or a corporation organized under the laws of the United States, any State or the District of Columbia; (2) All parties holding an interest in the offer are in compliance with 43 CFR 3200 and the authorizing Act; (3) Offeror's chargeable interests, direct and indirect, do not exceed that allowed under the Act; and (4) Offeror is not considered a minor under the laws of the State in which the lands covered by this offer are located.

(b) Undersigned agrees that signature to this offer constitutes acceptance of this lease, including all terms, conditions and stipulations of which offeror has been given notice, and any amendment or separate lease that may cover any land described in this offer open to lease application at the time this offer was filed but omitted for any reason from this lease. The offeror further agrees that this offer cannot be withdrawn, either in whole or part, unless the withdrawal is received by the BLM State Office before this lease, an amendment to this lease, or a separate lease, whichever covers the land described in the withdrawal, has been signed on behalf of the United States.

This offer will be rejected and will afford the offeror no priority if it is not properly completed and executed in accordance with the regulations, or if it is not accompanied by the required payments. Title 18 U.S.C. Sec. 1001 makes it a crime for any person knowingly and willfully to make to any Department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Duly executed this __________ day of ______________________________, 19 ______

____

(Signature of Lessee or Attorney-in-fact)

LEASE TERMS

Sec. 1. Rentals—Rentals shall be paid to proper office of lessor in advance of each lease year until there is production in commercial quantities from the leased lands. Annual rental rates per acre or fraction thereof are: $1 for noncompetitive leases and $2 for competitive leases.

If this lease or a portion thereof is committed to an approved cooperative or unit plan which includes a well capable of producing leased resources, and the plan contains a provision for allocation of production, royalties shall be paid on the production allocated to this lease. However, annual rentals shall continue to be due for those lands not within a participating area.

Failure to pay annual rental, if due, on or before the anniversary date of this lease (or next official working day if office is closed) shall automatically terminate this lease by operation of law. Rentals may be suspended by the Secretary upon a sufficient showing by lessee.

Sec. 2. Royalties—Royalties shall be paid to proper office of lessor. Royalties shall be computed in accordance with regulations and orders. Royalty rates on production are: 10 percent for steam, heat, or energy; 5 percent for byproducts; and 5 percent for demineralized water.

Lessor reserves the right to establish reasonable minimum values on production after giving lessee notice and an opportunity to be heard. Royalties shall be due and payable on the last day of the month following the month in which production occurred.

A minimum royalty shall be due for any lease year beginning on or after the commencement of production in commercial quantities in which royalty payments aggregate less than $2 per acre. Lessee shall pay such difference at the end of lease year. This minimum royalty may be waived, suspended, or reduced, and the above royalty rates may be reduced for all or portions of this lease if the Secretary determines that such action is necessary to encourage the greatest ultimate recovery of the leased resources, or is otherwise justified.

Sec. 3. Bonds—Lessee shall file and maintain any bond required under regulations.

Sec. 4. Diligence, rate of development, unitization, and drainage—Lessee shall perform diligent exploration as required by regulations and shall prevent unnecessary damage to, loss of, or waste of leased resources. Lessor reserves right to specify rates of development and production in the public interest and to require lessee to subscribe to a cooperative or unit plan, within 30 days of notice, if deemed necessary for proper development and operation of the area, field, or pool embracing these leased lands. Lessee shall drill and produce wells necessary to protect leased lands from drainage or pay compensatory royalty for drainage in amount determined by lessor.

Sec. 5. Documents, evidence, and inspection—Lessee shall file with proper office of lessor, not later than (30) days, after effective date thereof, any contract or evidence of other arrangement for the sale or disposal of production. At such times and in such form as lessor may prescribe, lessee shall furnish detailed statements showing amounts and quality of all products removed and sold, proceeds therefrom, and amount used for production purposes or unavoidably lost. Lessee shall be required to provide plats and schematic diagrams showing development work and improvements, and reports with respect to parties in interest, expenditures and depreciation costs.

In the form prescribed by lessor, lessee shall keep a daily drilling record, a log, and complete information on well surveys and tests and keep a record of subsurface investigations and furnish copies to lessor when required. Lessee shall keep open at all reasonable times for inspection by any authorized officer of lessor, the leased premises and all wells, improvements, machinery, and fixtures thereon, and all books, accounts maps and records relative to operations, surveys, or investigations on or in the leased lands. Lessee shall maintain copies of all contracts, sales agreements, accounting records, and documentation such as billings, invoices, or similar documentation that support costs claimed as manufacturing, preparation, and/or transportation costs. All such records shall be maintained in lessee's accounting offices for future audit by lessor. Lessee shall maintain required records for 6 years after they are generated or, if an audit or investigation is underway, until released of the obligation to maintain such records by lessor.

During existence of this lease, information obtained under this section shall be closed to inspection by the public in accordance with the Freedom of Information Act (5 U.S.C. 552).

Sec. 6. Conduct of operations—Lessee shall conduct operations in a manner that minimizes adverse impacts to the land, air, and water, to cultural, biological, visual, and other resources, and to other land uses or users. Lessee shall take reasonable measures deemed necessary by lessor to accomplish the intent of this section. To the extent consistent with leased rights granted, such measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures. Lessor reserves the right to continue existing uses and to authorize future uses upon or in the leased lands, including the approval of easements or rights-of-ways. Such uses shall be conditioned so as to prevent unneccessary or unreasonable interference with rights of lessees.

Prior to disturbing the surface of the leased lands, lessee shall contact lessor to be apprised of procedures to be followed and modifications or reclamation measures that may be necessary. Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources. Lessee may be required to complete minor inventories or short term special studies under guidelines provided by lessor. If in the conduct of operations, threatened or endangered species, objects of historic or scientific interest, or substantial unanticipated environmental effects are observed, lessee shall immediately contact lessor. Lessee shall cease any operations that would result in the destruction of such species or objects.

Sec. 7. Production of byproducts—If the production, use, or conversion of geothermal resources from these leased lands is susceptible of producing a valuable byproduct or byproducts, including commercially demineralized water for beneficial uses in accordance with applicable State water laws, lessor may require substantial beneficial production or use thereof by lessee.

Sec. 8. Damages to property—Lessee shall pay lessor for damage to lessor's improvements, and shall save and hold lessor harmless from all claims for damage or harm to persons or property as a result of lease operations.

Sec. 9. Protection of diverse interests and equal opportunity—Lessee shall maintain a safe working environment in accordance with standard industry practices and take measures necessary to protect the health and safety of the public. Lessor reserves the right to ensure that production is sold at reasonable prices and to prevent monopoly.

Lessee shall comply with Executive Order No. 11246 of September 24, 1965, as amended, and regulations and relevant orders of the Secretary of Labor issued pursuant thereto. Neither lessee nor lessee's subcontractor shall maintain segregated facilities.

Sec. 10. Transfer of lease interests and relinquishment of lease—As required by regulations, lessee shall file with lessor, any assignment or other transfer of an interest in this lease. Lessee may relinquish this lease or any legal subdivision by filing in the proper office a written relinquishment, which shall be effective as of the date of filing, subject to the continued obligation of the lessee and surety to pay all accrued rentals and royalties.

Sec. 11. Delivery of premises—At such time as all or portions of this lease are returned to lessor, lessee shall place all wells in condition for suspension or abandonment, reclaim the land as specified by lessor, and within a reasonable period of time, remove equipment and improvements not deemed necessary by lessor for preservation of producible wells or continued protection of the environment.

Sec. 12. Proceedings in case of default—If lessee fails to comply with any provisions of this lease, and the noncompliance continues for 30 days after written notice thereof, this lease shall be subject to cancellation. However, if this lease includes land known to contain a well capable of production in commercial quantities, it may be cancelled only by judicial proceedings. This provision shall not be construed to prevent the exercise by lessor or any other legal and equitable remedy, including waiver of the default. Any such remedy or waiver shall not prevent later cancellation for the same default occurring at any other time.

Whenever the lessee fails to comply in a timely manner with any of the provisions of the Act, this lease, the regulations, or formal orders, and immediate action is required, the Lessor may enter on the leased lands and take measures deemed necessary to correct the failure at the expense of the Lessee.

Sec. 13. Heirs and successors-in-interest—Each obligation of this lease shall extend to and be binding upon, and every benefit hereof shall inure to, the heirs, executors, administrators, successors, or assignees of the respective parties hereto.